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Original Communications.

Art. I.—*The Pathology and Treatment of Chronic Ulcers.*

By B. A. Watson, M. D., Surgeon to Jersey City Charity and St. Francis's Hospitals.

The study of the pathology of chronic ulcers necessarily involves a brief consideration of the origin and characteristics of that class usually designated as acute, since the former differ from the latter in so slight a degree as to render it frequently difficult to determine satisfactorily where the one ends and the other begins. Acute ulcers frequently become chronic, and chronic occasionally acute. Whether an ulcer becomes chronic or not, frequently depends upon its size, location, the condition of the patient's general health, and the presence or absence of local irritation. We often see large chronic ulcers situated on the upper extremities and various parts of the body, which have resulted from deep and extensive burns; but the smaller ulcers thus favorably situated usually heal without reaching the chronic stage, unless the patient's health has been previously vitiated. Local irritation, unaided by other influences, seldom produces the characteristic chronic ulcer on other parts of the body than the leg, and when thus situated the proper management requires much skill and considerable patience.

"Few practitioners look upon this class of diseases in the true light of philosophy; their ideas of their pathology are vague and indistinct; and it is not, therefore, surprising that they should find themselves completely baffled in their efforts at curing them. It is for this reason that chronic ulcers of the legs have so long been regarded as an opprobrium of surgery, and that so many patients are obliged to carry their malady with them to the grave, notwithstanding the numerous attempts that may have been made to get rid of it; all arising from the fact that its true nature was never properly understood."[1]

That we may better comprehend the nature of chronic ulcers, and thereby be more successful in their treatment, it will be necessary for us to begin the investigation with the pathological changes in the parts immediately preceding their formation.

"The first change that we see in irritated living tissue is dilatation of the vessels; the immediate result of this is retardation of the flow of blood, increased transudation and a collection of white blood-cells in the periphery of the calibre of the vessels, the wall of the vessels gradually grows softer, possibly from the long contact with the white blood-cells, which gradually enter and finally pass through the walls."[2]

Following this condition and dependent on it are the infiltration of the tissues and defective nutrition of the parts. These changes may be the result of local injury or constitutional disease. The local injury may be mechanical or chemical. The constitutional disease may be specific or general. The infiltration is caused by the escape of "wandering white blood-cells through the walls of the vessels, their collection in the tissue, with the secondary action they induce: plastic infiltration, and inflammatory new formation."[3]

The defective nutrition of the parts in cases of local injury may be primarily due to the destruction of the capillary vessels, or, as in cases of constitutional diseases, may depend upon the infiltration and resulting hyperæmic condition of vessels.

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[1] Gross's "System of Surgery," vol. i., p. 184.

[2] Billroth's "Surgical Pathology," p. 60.

[3] Ibid., p. 68.

When the local injury has been sufficiently severe, a larger or smaller portion of integument will be ultimately thrown off as a slough, with more or less of the adjacent tissues, leaving a granulating wound or ulcer, but in other cases, where the injury has been less severe, there will be only an abrasion or excoriation of the skin, possibly infiltration into the cellular tissue, which may be followed by the formation of an abscess, and finally result in the destruction of the integument. In the former case the ulcer commences on the surface, and in the latter the abscess ends in the transformation process. In cases of constitutional disease, not unfrequently the first intimation that an ulcer is in the process of formation is gained in the discovery of a vesicle or pustule, which only needs to be opened to convert it into a miniature ulcer, which then often increases rapidly in size. It is a well-established fact that the wandering white blood-cells in the tissue are followed by plastic infiltration and inflammation, and the tissue in which these cells are infiltrated dies, as always happens in circumscribed cell-proliferation. The tissue surrounding the spot first diseased is gradually infiltrated with cells; and it also goes on to form fluid cellular tissue with the character of pus; the infiltrated tissue is the more disposed to suppurate and break down when its vessels are little developed and do not supply sufficient qualitative or quantitative nutriment material to maintain the further development of the excession-cells."[1]

The origin and action of pus in this connection is worthy of our brief consideration. Pus was formerly supposed to possess solvent properties; but it is now known that "*pus is not the dissolving, but the dissolved, i. e., the transformed tissue.* A part becomes soft, and liquefies while suppurating, but it is not the pus which occasions this softening; on the contrary, it is the pus which is produced as the result of the proliferation of the tissue."[2]

Paget believes that inflammatory lymph is readily converted into pus, and in fact that this is its usual origin. Billroth says: "Pus is fluid, as it were melted, dissolved inflammatory new formation. When pus is present in quantity, it must have come from some sort of granulation tissue, or from some other highly-vascular and usually highly-cellular source; this source need not always be a surface, as in the present case, but may lie deep in the tissue and form a cavity; the centre of an inflammatory new formation anywhere in the tissue may break down into pus."[1]

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[1] Billroth's "Surgical Pathology," p. 368.

[2] Virchow's "Cellular Pathology," p. 490.

Wandering cells as we see have already played a very important part in the inflammatory action and pus-formation; but this seems to be only a secondary and minor part of their work. The formation of granulation tissue, or the healing of wounds by the granulation process, is only an example of the proliferation and transformation of the wandering cells. "That is, the white blood-cells become fixed connective-tissue cells."[2] The formation of granulations on the surface of a wound is preceded by an exudation of lymph; or a fibrinous substance which, if the wound be left open, will be found to cover its entire surface, glazing it over with a whitish film; "and this, if it be examined with the microscope, will be found to contain an abundance of corpuscles having the appearance of white corpuscles of the blood."[3]

Billroth says: "The exuded fibrinous material on the surface of the wound becomes soft and gelatinous; at the same time, the infiltrated tissue of the surface of the wound assumes the same peculiarities; the soft connective tissue, into which the young vessels shortly grow, even if only present in small quantities, holds together the cells of inflammatory new formation, which constantly increase in numbers. The *granulation tissue* is thus formed."[4]

In the large majority of ulcers of recent formation, the first granulations which form are healthy, and possess the power of reproduction in a high degree; but this power is gradually diminished until the granulations are no longer capable of reproducing their kind. The surgeon may be still able to urge forward after some delay the granulation process, but in this class of cases the improvement is often only temporary, and, sooner or later, the newly-formed cells begin to melt away, when their destruction is much more rapid than had been their growth. The loss of this power is due primarily to defective nutrition in the parts, and the inclination is to secure a freer development of vessels and thereby stronger cells, "which do not lead to suppuration, but to connective-tissue new formation."[1]

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[1] Billroth's "Surgical Pathology," p. 69.
[2] Ibid., p. 61.
[3] Paget's "Surgical Pathology," p. 15.
[4] Billroth's "Surgical Pathology," p. 68.

The transformation of the acute ulcer into the chronic may be rapid or slow. Some ulcers are essentially chronic from their commencement, especially in cases of constitutional disease. Chronic ulcers also differ widely in their characteristics, and have received a great variety of appellations, according to their peculiarities. I shall attempt to enumerate them only so far as their varied pathological character would seem to serve as an indication to their proper management. Cancerous and lupoid ulcers, although sufficiently chronic, are not included here—belonging more properly to another classification—and for the additional reason that the treatment in these diseases differs in a marked degree from that of the ordinary chronic ulcer.

It may be advantageous in the study of this subject to recall to mind the fact that chronic ulcers may originate either in constitutional disease, local irritation, or both; and the same influences that have caused their origin may perpetuate their existence. The nomenclature of ulcers, it must be confessed, is still vague and unsatisfactory, although to some extent based on local conditions and constitutional diseases. The following names, more frequently applied to chronic ulcers than acute, as callous, varicose, irritable, inflammatory phagedenic, and exuberant, are founded on certain peculiarities or morbid conditions of the ulcer, or the parts more or less immediately surrounding it; while others, also essentially chronic, but originating in constitutional disease, are designated as syphilitic, strumous, eczematous, and scorbutic. These names, although apparently sufficiently explicit, are nevertheless frequently unsatisfactory to the surgeon, for the reason that few ulcers are seen in practice which do not possess a mixed character. The varicose, like the callous ulcer, frequently has a hardened border and base. The induration is occasionally so great as to render these parts as firm as cartilage, and this hardness seriously interferes with the necessary flow of blood to the ulcer, which now becomes torpid in character. The inflammatory ulcer may possess the characteristics of the irritable, and under these circumstances resemble both. The tertiary syphilitic ulcer is often found on the leg, complicated with the varicose condition. The phagedenic ulcer under proper management may soon lose its peculiarities on which the name is based; and the same remark applies with equal force to a large portion of the names now in common use. The names are expressive of certain conditions, often transient in character, rather than of any specific class of lesions; and a consideration of these facts suggests the propriety of adhering as closely as possible to the primary division of ulcers into idiopathic and symptomatic, or acute and chronic. "Idiopathic ulcers are such as result from purely local irritation; they may also be termed irritative ulcers. Symptomatic ulcers are such as from some dyscrasia appear as a symptom of constitutional disease, without the action of a local irritation on the affected part."[1] An acute ulcer is one in which the recuperative action preponderates over the process of disintegration. A chronic ulcer is one in which the process of disintegration is *equal to*, or *greater than*, the recuperative action. The terms acute and chronic are used here to express a *condition*, without reference to the time which has elapsed since the formation of the ulcer, but with a bearing on the probable duration. It therefore follows as a natural sequence that so long as an ulcer remains acute the treatment is comparatively of little importance; but the chronic ulcer requires for its successful management a thorough knowledge of its pathology; the power and adaptability of the remedial agents which are to be employed; and, finally, much skill in the application of the same. I have not attempted to describe the varied appearances of the chronic ulcer, which would require much time and space—a repetition of an almost endless catalogue of names—a detail of the form, shape, color, size, location, character of the discharges, and the surrounding conditions, but have given considerable attention to its origin—have also alluded to some of its subdivisions, and finally offered a definition. It is not my intention now to enter into the details of treatment, but I shall first attempt to inquire into the indications, then offer a few suggestions on their general management, and finally conclude with a description of that method which will enable us, I believe, to accomplish the object sought, in the least possible time, in the greatest number of cases. Ulcers originating in constitutional diseases furnish us a reliable indication for the constitutional treatment, and, should this indication be disregarded, failure instead of success may be confidently anticipated. It is also true that the constitutional treatment, although absolutely necessary in these cases, will result disastrously if unaided by local applications and the successful management of all existing complications. Thus the tertiary syphilitic ulcer will require that the patient should receive constitutional treatment.

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[1] Billroth's "Surgical Pathology," p. 395.

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[1] Billroth's "Surgical Pathology," p. 395.

Iodide of potassium, either alone or in combination with tonics, will be found not only advantageous, but often indispensable. The existing condition of the ulcer must be your guide for the local treatment. Should its base and border be found firmly indurated, or the ulcer complicated with a varicose condition of the veins of the parts, then such means should be employed as will remove the complication. In the employment of further means, it should not be forgotten that, "to induce healing of an ulcer, the first requirement is arrest of the disintegration on the surface; next, that the floor of the ulcer assumes, at least approximately, the character of a healthy granulating surface, which goes on to cicatrize in the usual way. In torpid, atonic ulcers it is absolutely necessary that there should be a free development of vessels, and stronger cells, which do not lead to suppuration, but to connective-tissue new formation; in proliferating ulcers, on the other hand, the new formation must be brought back to the normal size. As you will readily perceive, on reflection, this gives the indication for the local treatment to be followed in either case."[1] Let us now remember, in the use of remedies, the indications and requirements. Our first object is, to arrest the disintegration on the surface of the ulcer. This process of disintegration, in both the constitutional and local ulcers, is perpetuated by irritation, and to relieve this condition is the great object of treatment. How can this object be most readily accomplished? The patient in all severe cases must be kept in bed—this is the *sine qua non* of treatment; and next to this is perfect cleanliness—not merely of the ulcer, but the whole person. Thus far nearly all chronic ulcers will be benefited by the same treatment, and a careful inspection will now furnish further indications for its proper management. Should the edges of the ulcer be indurated, inverted, or ragged—there being at the same time complete absence of healthy granulations—and a secretion of thin ichorous pus, then you should choose between the use of the knife, actual cautery, the application of caustic potash or strong nitric acid; but, in more favorable conditions, a wet compress or an emollient poultice may be sufficient to meet the indications. It should not, however, be forgotten that *rest in bed and entire neatness* will in the course of a few days, in nearly all cases of ill-conditioned ulcers, effect an almost marvelous change for the better. The explanation of this is to be found in the fact that the position will usually put an end to nearly all local irritation, and also greatly reduce the inflammation. This, however, will not be the case when the ulcer is originated or perpetuated by dead or diseased bone, and here the sooner the irritation is removed the better it will be for the patient. With these brief allusions to the management of constitutional and local complications, I shall now enter on the consideration of the best means for the production of healthy granulations, and subsequent cicatrization of chronic ulcers. The importance of this subject demands an inquiry into the pathological conditions attending these processes; and without this knowledge it would be impossible to understand the indications for treatment. "Hunter says: 'I have often been able to trace the growth and vascularity of this new substance. I have seen upon a sore a white substance, exactly similar, in every visible respect, to coagulating lymph. I have not attempted to wipe it off, and the next day of dressing I have found this very substance vascular; for by wiping or touching it with a probe it has bled freely. I have observed the same appearance on the surface of a bone that was laid bare. I once scraped off some of the external surface of a bone of the foot, to see if the surface would granulate. I remarked the following day that the surface of the bone was covered with a whitish substance, having a tinge of blue; when I passed my probe into it, I did not feel the bone bare, but only its resistance. I conceived this substance to be coagulating lymph thrown out from inflammation, and that it would be forced off when suppuration came on; but on the succeeding day I found it vascular, and appearing like healthy granulations.'"[1] This observation of Mr. Hunter's wanted only the application of the microscope to show all that is now known in regard to the formation of granulations.

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[1] Billroth's "Surgical Pathology," p. 395.

Billroth, speaking of this question in connection with the treating of incised wounds, says: "What will now take place in the tissue itself? Essentially, the same changes as in the united edges of a wound; wandering of white blood-cells through the walls of the vessels, their collection in the tissue with the secondary action they induce; plastic infiltration, and inflammatory new formation. But since there is no opposing wounded surface with which the new tissue can coalesce, then to be quickly transformed to connective tissue, the cells, escaping from the vessels, remain at first on the surface of the wound; the exuded fibrinous material on the surface of the wound becomes soft and gelatinous; at the same time, the infiltrated tissue of the surface of the wound assumes the same peculiarities; the soft connective tissue, into which the young vessels shortly grow, even if present in only small quantities, holds together the cells of the inflammatory new formation, which constantly increase in number. The *granulation tissue* is thus formed; this is, therefore, a highly-vascular inflammatory new formation. At first it grows constantly, the direction of its growth being from the bottom of the wound toward the surface; the tissue is, however, of different consistence in the various layers, its superficial surface especially is soft, and *most* superficially of fluid consistence, for here the intercellular substance becomes not only gelatinous, but fluid; this uppermost thin fluid layer, which is constantly flowing and being constantly renewed from the granulation tissue by cell-exudation, is *pus*."[1] Having presented the subject of granulation, it now becomes necessary to give some attention to the process of cicatrization. We have already observed that granulation begins in the bottom of the ulcer, that layer upon layer is formed until the ulcer has been filled on its periphery to the level of the surrounding skin, at which point the cicatrization must commence. "The following metamorphoses now gradually occur: the entire surface contracts more and more, becomes smaller; on the border, between skin and granulations, the secretion of pus diminishes; first, a dry, red border, about half a line broad, forms and advances toward the centre of the wound, and, as it progresses and traverses the granular surface, it is followed closely by a bluish-white border, which passes into normal epidermis. These two seams result from the development of epidermis, which advances from the periphery toward the centre;". . . . until "finally it covers the entire granulating surface."[2] It has, however, been claimed that, in a few rare instances, there are exceptions to this rule, that all cicatrization advances from the periphery toward the centre;[3] but Billroth disbelieves this statement, and says: "This is only true of cases where portions of cutis with rete Malpighii have remained in the midst of the wound, as may readily happen in gangrenous wounds, as the caustic agent may penetrate unequally deep. . . . But, if there be no such remnant of rete Malpighii, we never have these islands in the cicatrix; the formation of epidermis only takes place gradually, from the periphery of the wound toward the centre. I believe this so firmly, that I think surgeons, who say they have seen otherwise, must be mistaken in some way."[4] My observation confirms the opinion here stated, and I shall reluctantly believe that cicatrization furnishes an exception to the general law as given by Prof. J. J. Chisholm: "A living substance possessing formative power can only produce its kind; and, under this general law of Nature, old skin alone can form new: therefore is it that islets of new skin are never seen dotting the surface of an ulcer which has extended through the entire depth of integumentary tissues."[1] I have entered thus fully on the subject of the pathology of granulation and cicatrization for the purpose of aiding the rational treatment of these lesions. The well-merited high standing of the authorities cited entitles their opinions to great weight; and the important question is now, "How can the indications be best met, and the object sought accomplished in the least possible time in the greatest number of cases?" I believe that the plan introduced by M. Revardin not only enables us to heal ulcers, which otherwise would remain open and suppurating during the whole life of the patient, but at this time is *the most potent power* known to surgeons for healing all chronic ulcers. It is at the same time a question to be determined, in each and every case of this lesion, whether the advantages to be gained by this method will compensate the patient for the additional inconvenience. Many cases of small chronic ulcers, although situated on the lower extremities, have, when attended by favorable conditions, been induced to heal, while the patient continued to perform his duty as laborer or mechanic. In cases where the patient's condition forces him to attend regularly to his business, strapping over the ulcer, bandaging the limb, and occasionally other remedies, will be preferred to skin-grafting. The preference is here given to other methods, although the healing is not so readily or perfectly accomplished. I am now satisfied, after having practised skin-grafting in hospitals more than four years, during which period I have had the opportunity of witnessing the application of this method to the healing of a large number of chronic ulcers, and comparing it with the other methods now in use for the accomplishment of the same object, that the following are some of the advantages which may be safely claimed for it: It enables us to heal chronic ulcers which otherwise would go with the patient to his grave; to heal others which have resulted from extensive burns and complete destruction of the integument over a large surface of the body, with a rapidity formerly unknown; and also that it produces a more healthy cicatrix, and prevents, to a very great extent, the deformities which otherwise would exist. The fact that the application of a few skin-grafts to an ulcer usually produces an improved condition—a vitalizing effect—I think will be readily admitted by those who have watched the operation; but the larger the number applied, the better the results obtained. The ulcer is, I believe, temporarily improved, even though the grafts fail to become adherent, but the most marked improvement is seen in cases where a large number of points of cicatrization have formed. "Dr. Masters states, on the authority of Mr. Rivers, that an unhealthy or feeble stock has been restored to health by the imposition of a healthy graft. This fact has its parallel in what takes place after the surgical operation of grafting a bit of healthy skin upon an ulcerated surface."[1]

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[1] Paget's "Surgical Pathology," p. 155.

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[1] Billroth's "Surgical Pathology," p. 68.

[2] Ibid. p. 66.

[3] *See* Paget's "Surgical Pathology," p. 215.

[4] Billroth's "Surgical Pathology," p. 67.

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[1] *Richmond and Louisville Medical Journal*, for October, 1870.

In regard to the effect of the healthy graft on the unhealthy stock of plants, I am unable to speak from my own observation; but, in cases of skin-grafting in ulcers, I know that the unhealthy ulcer is frequently transformed into the healthy with surprising rapidity. I now recall to mind a case in which nearly all the other methods known in surgery had been applied unsuccessfully for the healing of a very large ulcer, which extended from the axilla to the crest of the ilium, on which I applied two hundred skin-grafts, and had the satisfaction of seeing the patient discharged, cured, from the hospital within six weeks. The patient had been in the hospital, at the time of the application, many months, with no permanent improvement. Among other means attempted for his relief was the performance of a plastic operation, whereby a large portion of the ulcer was sought to be covered by healthy integument, cut from the adjacent parts. This operation completely failed, and resulted in an increase of the size of the ulcer. Skin-grafting not only rapidly healed it, but produced a firm cicatrix without deformity, and in which there was very little tension. The rapidity of the reparative process is apparently due in the first instance to the vitalizing effects of the grafts upon the granulations, whereby they are enabled to reproduce themselves with a rapidity very rarely seen, except as a sequel of this method; and, secondly, to the formation of a large number of new points of cicatrization, which rapidly increase in size, while cicatrization at the periphery of the ulcer is also very much hastened. I am now satisfied, after an extensive and prolonged trial of the different methods of skin-grafting, that the use of small portions of healthy integument is far preferable to the epidermic scales or lymph. The results are much more uniform and certain. I prefer small portions of integument to large ones, and believe that our greater success with the former is due largely to the fact that these are more readily kept in actual contact with the surface of the ulcer, than the latter. The larger portions of integument are liable to be raised from the surface of the ulcer by the formation of pus beneath them. I do not claim to understand perfectly all of the conditions essential to successful skin-grafting; but I am fully satisfied, and my experience justifies the conclusion, that *perfect cleanliness* of the ulcer is more important than any thing else. Every particle of dead tissue *must be removed.* Should the smallest particle intervene between the graft and the surface of the ulcer, failure instead of success may be confidently anticipated. This one condition being constantly kept in mind, and fully attained, the surgeon may then apply grafts to chronic ulcers, whether of constitutional or local origin, with the assurance that at least seven-five per cent. of all those applied will become adherent, and form new points of cicatrization. I am accustomed to secure the required cleanliness by the use of the caustics, emollient poultices, and wet compresses. It often requires eight or ten days to prepare the ulcer for the reception of the grafts; and during the preparation I prefer to have my patient kept in bed, for reasons previously mentioned. Although a very careful preparation is absolutely essential to success, nevertheless the proper application of the grafts is of equal importance. In speaking of this operation, for the sake of brevity, I shall omit many of the important steps which have been previously detailed in the various articles already published on this subject, and content myself with mentioning certain details and peculiarities of treatment which I have found to be advantageous. I am in the habit of applying the grafts in rows. The object sought in this method of application is, the retention of the grafts in their place with the use of as little plaster as possible. I conceive this point to be very essential. When a large amount of plaster is used the ulcer is to a great extent covered with it, and beneath this plaster accumulate the discharges; the plaster is very frequently raised from the grafts, and the grafts may be moved from the point on which they were originally applied. I am satisfied that this has frequently happened in cases where the grafts were applied irregularly on the surface of the ulcer. The regular application in a continued line obviates all this danger by diminishing the amount of plaster necessary to keep the grafts in their places. The direction of the line will depend necessarily on the shape of the ulcer, since the plaster is used to protect the grafts, and retain them where they were originally applied. I therefore desire the lines to traverse the ulcer in such a way as to make them as short as possible. Having placed one row of grafts on the surface of the ulcer at regular intervals of half an inch I now proceed to cover this with a strip of isinglass-plaster, somewhat wider than the grafts. The other grafts are now put on in the same manner, until the ulcer has been sufficiently grafted, after which I place a wet compress of sheet-lint over it, and then apply with moderate firmness a roller-bandage, and require it to be wet with water about every four hours. This dressing remains undisturbed for a period of forty-eight hours, when I remove the bandage, and compress with much care, lest I might displace the grafts, but the plaster is not disturbed. The transparent character of the plaster used enables me to see the changes which have taken place beneath it. The ulcer should now be carefully cleansed with water, and a similar dressing reapplied.

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[1] Ross, "Graft Theory of Disease," p. 41.

Whether the ulcer ought to be dressed daily or every second day, will depend on its condition; but the plaster should remain undisturbed for a period of six or eight days. The planting of normal germs, or what is more familiarly called skin-grafting, has been to me a subject of great interest, and I have spent much time in the study of this interesting and successful mode of healing ulcers. The more common mode of germ-planting consists in taking from any part of the patient's body a piece of healthy skin, which is then divided into many small pieces, and these small pieces, varying in size from the number four to number eight shot, are then placed on the surface of the ulcer. In watching the result of this operation, I have frequently witnessed phenomena which, at that time, I think had not been explained. It is the rule to allow the grafts to remain undisturbed for several days, although after the first forty-eight hours I have usually removed the dressing daily, for the purpose of watching the progress and cleansing the ulcer. It often happened that *every trace* of the grafts so recently applied had entirely disappeared, or at least were not discernible to the unaided eye. This appearance was deceptive and not real. Within a few days there would appear on the site of each graft a grayish-white speck, which would rapidly increase in size, and serve as a new point of cicatrization. In what did these phenomena consist? The germ-theory gives me a satisfactory solution of the question. The formed material had undergone putrefactive solution, and the germinal matter, having found a soil congenial to its wants, had taken root, to bring forth a thousand-fold. The second method of germ-planting consists in removing the epidermic scales from some portion of the body — more frequently the thigh — which had been previously shaved to remove the fine hairs, after which the parts were scraped with a scalpel, and the scales collected on a piece of writing-paper, and these carefully distributed over the surface of the ulcer. The same phenomena were here observed as in the first method, although less satisfactory results on the ulcer were obtained. The third method consists in applying a fly-blister to some portion of the body—collecting the serum, transferring it to the ulcer, and retaining it in contact. Here, again, good results have been attained, for the reason that the serum contains living germinal matter. The chamois-skin was used for the same purpose; but its use in every instance proved to be a miserable failure, for the reason that the germinal matter in the old skins was dead, and that dead seed will not grow.

Art. II.—*The Use of Water in Fevers.*[1] By R. Tauszky, M.D.

In thermo- and hydro-therapeutics we used to think that a precise method was unnecessary. We seldom went further in the valuation of the remedial effects to be produced by the use of water than to consider its purifying and thirst-quenching properties. When this agent was called into requisition to display its thermal effect, we reasoned that the method was a very simple one, thus: If the body is too warm, we will dip it in cold water, we will shower it or sprinkle it with the same. If we desired a more decided or detailed proceeding, or direction, we used to say the warmer the body is, the colder must be the water used, because the quantity of the heat abstracted, or given off, was proportionate to the difference of the temperature of the two, namely, that of the patient's body and the surrounding medium. This method of reasoning is inadmissible, because the lowering of the temperature of the fever-patient would depend not only on the difference between the temperature of the body and that of the water used, or applied, but also on the duration of the mutual contact, and on the quantity of the heat-abstracting body. It would depend, furthermore, on whether the patient was at rest while in the water, or whether he was in motion during the contact; it would depend on the relation of the surface to the cubic measure of the warmer body. Then the chemical composition, the gases and the salts contained in the water, would have to be taken into consideration. The giving off of heat and the diminution of the temperature depend also on many other circumstances that are of great importance in this method of treatment.

The blood-current conducts the quantities of heat that it receives of the heat-producing organs, namely, the glandular organs and the muscles, in the same manner as if it were a complete water-heating apparatus. It will conduct the heat through the blood-vessels to all the parts of the body, according to the diameter of the circulating vessels of each single organ, therefore also to the surface of the body. An organ or a part whose supply of blood is cut off or partially impeded, as everybody knows, diminishes in temperature. Parts where a spasmodic contraction of the blood-vessels takes place are cold, and show a diminished giving off of heat. We may, therefore, easily appreciate of what great value and importance the regulation of the circulation of the skin is, in abstracting heat therefrom. We are enabled by a scientific combination of thermic and mechanical irritations of the blood-vessels of the skin, of which I am principally treating, to cause their dilatation or their contraction.

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[1] Read before the Medical Library and Journal Association, June 4, 1875.

Reliable statistics are not wanting from various and good observers in many epidemics, during which one portion of the persons affected, under the very same circumstances, have been treated by the so-called expectant method, without medical interference, treated only in accordance with hygienic laws, others being treated by the usual remedies, and still others by the methodical use of the cooling or water-treatment. In all cases the water-treatment, when applied scientifically, has shown a considerable lowering of the temperature, and consequently been the means of saving many lives that would otherwise have been lost. We will cite some authorities, whose veracity cannot be doubted, in order to corroborate our statement.

Let me begin with James Currie, a Liverpool physician, who wrote on the effects of cold and warm water as a remedial agent in fever and other diseases, in the eighteenth century; his work was translated into German as early as 1801, and again in 1807 by Hegewitch. This author states that of 229 patients suffering from typhus fever during a severe epidemic, treated with water, he only lost four, a mortality of not quite two per cent. Brand, of Stettin, did not lose a single patient, during a pernicious epidemic, out of 170 cases treated with water. His publications on this subject appeared in 1861, 1863, and 1868.

Jürgensen, in Kiel, compares 330 cases of typhus treated by him with medicine in the usual way, from the years 1850 to 1861, and 169 cases treated since with water. Of the former, namely, of those treated with medicine, 15.4 per cent. died; of the latter, the water-treatment having been used, 3.1 per cent. perished. Of 60 cases thus treated since, besides those mentioned, not one died. (Leipsic, 1866.)

Liebermeister, in Basel, lost of 478 typhus patients only a little over eight per cent. of cases in which he methodically applied the water; while, on the contrary, before using water, he lost 16 per cent.

Ziemssen, in Erlangen, lost seven per cent. of his typhus patients treated with water, while of sixty-three equally severe cases, treated with medicine, 30.2 per cent. died.

Lindwurm, in Munich, had in 102 typhus patients a mortality of four per cent. as a result of the water-treatment.

Bamberger, of Vienna, lost 6.6 per cent. under the water-treatment of 120 cases of typhoid fever, while previous to the time of his publication on the subject the mortality was, and even now is, 20 per cent. if otherwise treated. In the city hospital at Nürnberg the average mortality of typhus patients during twenty years was 14.22; it is now by the treatment under consideration 4.8 per cent. Not only in typhus and typhoid fever did this method prove to be so satisfactory, but also in all other febrile diseases. Another reliable proof is furnished by Pastau, who, in 1868 and 1869, treated some of his patients with water, and others by the expectant method. The percentage of deaths in the latter was 16.47, while in those treated with water it was only 11.79.

Winternitz treated over forty cases of febrile disease by the hydropathic method, and he had the good fortune not to lose a single one of his patients.

I could adduce a large number of other authorities to prove more forcibly than has been done here the great value of the water-treatment in febrile diseases, but I think enough has been said, if statistics are of any scientific value at all, to prove the efficacy of the treatment under consideration.

It will now be my purpose, gentlemen, to describe in brief outline the method according to which the water is to be used in the treatment of fever. These are:

1. The simple ablution, or the sponge-bath.

2. The enveloping and the rubbing of the body by means of a wet sheet (which I will call the friction-bath).
3. The half-bath.
4. The full bath.
5. The shower-bath or douche-bath.
6. The wet-pack bath.
7. The continuous local bath, or the local applications of Priessnitz and Brand.

Let us briefly consider the effect produced by, and the indication for, the sponge-bath in fever. This procedure is a very simple one, and is recommended by Winternitz in some instances where the temperature of the patient is not over 101° or 102° Fahr. In higher fever, if made use of, it is done principally with a view of its effect as a nervous stimulant; it causes the patient to feel more comfortable, and seems to be very grateful to him for a short period of time. It may be employed as a preparatory method, since it generally strengthens the confidence of the patient, and by its influence on the vessels of the skin prepares them for the greater giving off of heat under further treatment. With ablutions, or sponging alone, we accomplish only small results, lasting but a short time; these, to be of service, would have to be undertaken at least every half hour, which could hardly be done for obvious reasons. "I had occasion to convince myself," Winternitz says, "that the lowering of the temperature caused by this method rarely amounted to more than two or three degrees, Celsius, and that after the application the temperature of the body is higher for a short time than it was before. The simple washing or sponging off will therefore not have the desired effect; it will not lower the temperature of the fever-patient, or at least it will do this only in a very unsatisfactory manner, and if applied would have to be repeated every half-hour in order to have a continued antipyretic effect." I repeat, the simple ablution will produce an elevation in the temperature, and not a lowering of the fever, if not followed by more active measures.

I will next consider the second method, the friction-bath, or rubbing by means of the wet sheet. This is a more use ful mode of treatment than the former. A sheet, having been dipped in water of a temperature ranging from 62° to 53° Fahr., is to be wrung out well, and then to be wrapped around the patient; but before applying it we must use the precaution of cooling the head first by cold applications, for the purpose of preventing the congestion of the brain which would otherwise follow. The friction-bath has the advantage of being a powerful nerve-stimulant, since all the peripheric terminations of the nerves are thus stimulated the very moment of their contact with the sheet, and we can graduate this procedure at will.

This method causes a dilatation of the peripheric blood-vessels, as shown by Goltz, of Strasburg. A dilatation in such a large territory of blood-vessels as we have in the skin must produce its effect upon the distribution of the blood, the relation of pressure and tension in the whole system of blood-vessels, and must be, as a matter of course, of great influence on the action of the heart. This procedure will produce a beneficial nerve-stimulus, since it abstracts the surplus heat from the fever-patient; it will lessen the coma, delirium, cephalalgia, or other brain-symptoms. It will also lessen the hyperæmic states of internal organs, found so often in inflammatory diseases accompanied by fever, by equalizing the blood-current throughout the system. The hard, incompressible, full, strong, tense, accelerated pulse will become softer, more compressible, less accelerated; in short, it will become a pulse similar to the normal one. The diminution of the frequency of the pulse, the calming of the violent action of the heart, are, it seems to me, of vast importance for the equalization of the febrile disturbance. But what I have here stated is not all we accomplish by the use of the wet sheet.

Weyrich has proved that, by rubbing the skin gently, the evaporation from its surface is increased more than fifty per cent. Leyden, moreover, has demonstrated the fact that during fever a retention of water takes place within the organism. This skin is generally dry like parchment, the urine is scanty and concentrated, the bowels often constipated during fever; all this in spite of the patient's large libations of water. Thus we are enabled to do justice to an indication by means of simple rubbing which cannot be accomplished in any other known way—the evaporation of the water from the skin taking place in consequence of the mechanical means employed. We thus directly counterbalance in the patient the abnormal process, the want of the elimination of used-up material, thereby contributing toward neutralizing the disturbance. Often we may observe that, after the rubbing, the burning, dry skin becomes soft and moist, having a tendency to a gentle perspiration.

Even as a diagnostic adjuvant this simple and efficient procedure is of the greatest importance in some cases by the change produced in the skin. In children, especially in the eruptive fevers, we see often that, immediately after the friction-bath, the exanthema, which before could not be diagnosed, clearly appears, and we accomplish, by means of the dilatation of the blood-vessels and the lessened tension and pressure in them, an adequately lessened hyperæmia of the brain, with diminished coma, etc. In children as well as lean adults, where the proportion of the contents of the body to its surface is a comparatively larger one, the procedure referred to above as a heat-abstracting medium often suffices to lower the temperature of the body. We only need for this purpose a little water and a few bed-sheets. This treatment can be followed without difficulty, in private practice as well as in hospitals. If we desire to accomplish a more decided effect than that produced by the method described, we easily obtain the same by pouring cold water, of the temperature mentioned, frequently upon the sheet, while wrapping the body. If there is a greater accumulation of heat within certain organs or parts of the body, we wrap the patient in two sheets at the same time. By this method we are enabled to abstract a double quantity of heat. In those parts of the body which already give off a good deal of heat *per se*, we can diminish the mechanical effect by another procedure, namely, we need only rub those peripheric parts which do not show themselves to be overheated. The method is the following: The patient being wrapped in a wet sheet is placed on a chair, if able to sit up, or on a sofa, with a water-proof rubber sheet under him. Painful parts are covered with wet cloths; colder portions are rubbed until these get warm. By continuing this procedure any length of time, and by pouring water repeatedly upon the sheet, we can obtain a decidedly beneficial effect, as determined by the use of the thermometer. In acute articular rheumatism, where the patient cannot be moved without causing pain, this procedure has been followed by the happiest results. The effect manifests itself in the lessened frequency of the pulse and a diminution of the sometimes excruciating pain. It is a noteworthy fact, based upon many careful observations, that the abstraction of heat retards also the occurrence of chills.

One of the simplest and most potent procedures in hydrotherapeutics is, third, the half-bath. This method is also very easily applied. A common bath-tub being placed near the bed of the patient, is filled to the depth of six or eight inches with water having a temperature between 70° and 53° Fahr. The patient having been prepared by a previous ablution, sponging or rubbing, with the precaution against preventing a congestion to the head by placing a bathing-cap upon it, is put in the tub, and with a proper vessel, an ordinary pitcher, for instance, the water of the tub is poured upon the neck and back; the skin all over the body being rubbed at the same time more or less, according to the state of the blood-vessels. If the patient is not comatose, and if his condition permits it, he can be asked to rub each and every part himself. Violent headache (especially unconsciousness, delirium, symptoms of irritation of the brain, or pressure on it) is greatly relieved by pouring water upon the head. The distance from which the water has to fall will be proportionate to the alteration of the functions of the sensorium. If the patient is able to wash his face during these showerings, the procedure will be much less disagreeable to him.

Sometimes the shower-bath increases the head-symptoms, especially the pain, at first, but, by repeating and continuing the pouring of the water upon the head, the pain soon disappears. In case the patient is very sensitive, or if he is perhaps afraid, it is well to place several layers of cloth over the head and to pour the water upon that. The repeated washing of the face, the longer or shorter intervals of these showerings of the head, the repetition and continuation of the same, cannot be indicated in figures for each and every case. These are to be regulated by the tact and skill of the attending physician. It will be a rarity, however, to find that the patient leaves the tub without having become conscious. If the patient moves considerably while in the bath, or if he be rubbed properly, the disagreeable feeling of chilliness even in the colder bath is far less than if he sits in it motionless. Here again it is the mechanical momentum of friction which acts on the blood-vessels of the skin, so that the abstraction of heat will be greater; in the aggregate the production of heat will be better regulated, and the occurrence of chills will thereby be considerably delayed. The lowering of the temperature after such a bath is at the same time far greater than after a longer-continued, colder, full bath, if the patient remain in the same unmoved and motionless. In the full bath the rubbing cannot be undertaken as well as in the half-bath. In the former the high pressure of the water upon the body delays the proper reaction. The temperature of the water used in fever should range, as stated, from 70° to 53° Fahr., 22° to 12° Cels. In the beginning it is sound practice to use water of a higher temperature, in order to overcome the sensibility of the patient. As long as the fever has not yet reached its acme, we use baths of from 18° to 16° Cels., from 65° to 60° Fahr., and we cool the water down to from 14° to 12° Cels., 58° to 53° Fahr., while the patient is in the bath, by adding colder water to it until it shows the temperature mentioned, 65° to 53° Fahr. The gradual cooling of the water used has the advantage of not causing so much nerve-excitation as would follow as if the lowest temperature were used at once. We thereby delay the occurrence of chills, the reheating of the body taking place slower than it would if we used very cold water from the beginning. Only where we find an indication to exert a potent nerve-stimulant, as in sopor and in comatose conditions, do we use water of a very low temperature from the first. The mechanical excitation of the moving water, by briskly rubbing the patient, by allowing the water to fall from a height upon the body, will produce a more intense effect. If the thermometer shows a decrease of fever-heat we have again recourse to water of a higher temperature.

The choice of too cold baths during fever is a very objectionable procedure, for the following reasons:

1. The colder the water used, the quicker the reaction, and the sooner the return of the fever-heat takes place. We would, therefore, require too many baths during twenty-four hours, if we wish to keep down the fever.

2. Too cold water is too powerful a nerve-stimulant, and would soon exhaust the patient; disagreeable symptoms of reaction are sure to follow such a procedure. Only if the nervous system is very much depressed, if sopor, coma, have supervened, I repeat, this powerful stimulant of a very cold shower-bath finds its rational and beneficial application.

We accomplish our object best by placing the patient in a tepid bath, or in an empty tub, pouring the cold water upon him from a height in proportion to the intensity of the brain-symptoms; the abstraction of heat itself must take place gradually and slowly, in order to prevent a too severe reaction.

The half-bath of medium temperatures, of from 22° to 16° Cels., 68° to 57° Fahr., must be continued for some time, the patient to remain in the bath until the thermometer in the axilla shows the same temperature as on other parts of the skin. The skin must become red, never bluish nor pale; the circulation of the surface must be equally distributed. This result we accomplish by rubbing the body. In general, it may be laid down as a rule that the patient should never feel chilly while in the bath, and, as soon as his skin shows a bluish tint, he must leave it immediately.

The antipyretic bath need seldom last more than fifteen to twenty-five minutes. But, in otherwise very robust patients, with a very high temperature, and a rapid production of heat, the bath may be continued for over half an hour at a time. I cannot omit mentioning an almost specific effect of this procedure, that will agreeably surprise any one who uses it for the first time: it is the beneficial effect produced on the organs of respiration. I have repeatedly seen, in pneumonia and in pleurisy with effusion, that the difficulty in breathing was much ameliorated, or became entirely normal, after the use of the half-bath for some time, the water being poured upon the trunk, which was rubbed gently, while the lower and upper extremities were rubbed with considerable force. Such a bath is to be continued from twenty to thirty minutes, and the temperature to be used should be not lower than 18° to 16° Cels., 65° to 54° Fahr.

I will now say a few words in regard to the fourth method, that is, the full bath.

That the full bath is less effectual than the half-bath just described, becomes evident to any one who compares the effects of the two under the same circumstances. Ziemssen recommends the tepid bath, which is to be gradually cooled by the addition of colder water. If we have to deal with very timid patients, this procedure will answer in many cases, but repeated observations have shown that it is not less disagreeable to sit in a warmer bath, which is gradually being cooled, than to be immersed into a cooler one at once. After the full bath the patient feels more or less chilly, which is hardly ever the case after a half-bath. The lessening of the temperature continues somewhat longer after the use of the gradually-cooled bath, but the frequency of the pulse is not much lessened thereby, since the distribution of the blood has not been equalized sufficiently, as experience teaches, and the tension of the blood-vessels remains almost the same as before; their contraction continues longer, and thus this method is not generally recommended by Winternitz. It may be set down as a law that, for the purpose of lowering the temperature of fever-patients, the water used must be of a lower degree than for the cooling of the healthy body, because the production of heat is more abundant and more rapid in fever and the giving off of it considerably lessened; therefore the abstraction of heat must be more energetic. If the high temperature of the blood has already produced serious disturbances in the nervous system, if delirium has set in, or if already symptoms of great depression or collapse manifest themselves, or if great dispnœa takes place—for instance in atelectasia—the so-called Ziemssen, or full bath, will not answer; here we have no time to lose; irrespective of the reaction which will follow, we must have recourse to the most powerful, irritating procedure, such as the half-bath from 62° to 50° Fahr., and the cold douche. If the symptoms are removed, we may again use warmer baths; with very timid patients we may apply even the bath of Ziemssen, but even in these cases Winternitz prefers another procedure, the formula of which is—short duration and low temperature.

If the skin still remains hot and dry, we will derive great benefit from the fifth method, the wet pack. In patients whose temperature is very high, but who are otherwise very weak and depressed; where we fear a sudden collapse; where, on account of too great a debility and anæmia, the movement and sitting up in a half-bath cannot be borne without danger, we use the heat-abstracting procedure mentioned, the wet pack, which is to be repeated according to indications. For this purpose, a sufficiently large blanket is spread on the sofa, or upon a second bed; over it we lay smoothly one or more wet sheets, which have been well wrung out in very cold water. The patient is to be wrapped in the sheet, or sheets and blanket, so that those coverings adhere to his body closely. The woolen blanket is drawn tighter or looser over the sheet, according to the indication of the case. With a single sheet, the body soon equalizes its temperature; this is soon heated to that of the body, and now the bad conductors, the sheet and blanket, would even prevent the giving off of heat and would increase the fever, but if the blanket is closely drawn over the sheet and body, so that these coverings closely adhere to the skin, the elevation of temperature appears to take place somewhat more slowly, since the rough surface of the blanket, as soon as it becomes warm, irradiates a considerable quantity of heat. Besides this, by being closely surrounded on all sides, the muscles, those of the extremities especially, are at perfect rest, which is of importance. But if the body is reheated too quickly, as determined by the aid of the thermometer, if the fever increases, as it sometimes does, we loosen the covering at once, place the patient in a second wet sheet, and again surround him with the blanket. It is best to have the second bed prepared, so as to put him from one bed into the other. After each successive packing the reproduction of heat becomes less and less, until the moment arrives when the temperature of the body is normal, or even somewhat less.

Experience and observation teach us to use one, two, or three sheets at a time, in accordance with the degree of fever. In this manner the number of changes necessary may be considerably lessened. Our purpose is accomplished when the skin becomes moist and warm. In some instances, we obtain a sensible perspiration; for instance in inflammatory rheumatism we have often profuse sweating, after and during the use of the wet pack. After the last packing, in which we leave the patient until he has become warm again, we use the half-bath, or a friction-bath. This last process is undertaken with a view of eliminating the accumulated heat from the surface of the body, giving the necessary tone to the relaxed skin, and moderating the rush of blood to that organ. It is of the utmost importance to see that the extremities become warm during the packing, the contrary being a sign of an unequal distribution of blood by a contraction of the peripheric blood-vessels. Such an unequal distribution of blood is to be guarded against, especially in the fever accompanying affections of the parenchymatous organs, of the lungs for instance. We prevent such an occurrence by rubbing the feet if cold, or we cover them with the blanket only, or we apply hot bottles, if necessary.

We have no method by the aid of which heat is is so gradually and satisfactorily abstracted as by repeated applications of the wet pack; no procedure after the use of which such a gradual reheating of the body takes place, if continued long enough; nor is there any method which produces as favorable a change in the skin. No other treatment with which I am acquainted reduces the frequency of the pulse to almost its normal standard so soon as this. It has been proved by the direct measurements of Gerhart that, during the water-treatment of fever, the excretion of urea in twenty-four hours is by far less than it would be if otherwise treated. The excretion of carbonic acid Schröder also found diminished after the use of water in the treatment of fever. The disappearance of uric acid from the urine of fever-patients treated with water is also a proof that less nitrogenized substances are decomposed, and that thereby the proper oxidation of the uric acid forms urea. This again indicates that a lessened process of decomposition takes place in fever if treated with water.

It is thus clearly proved, I believe, by the facts enumerated, that the abnormal waste of tissue which takes place during fever is considerably lessened in degree by the method referred to, and we may justly arrive at the conclusion that the water-treatment of fever is based upon rational and scientific principles.

The principal rule, however, in applying this treatment in a given case of fever, no matter which of the procedures mentioned be used, is its methodical repetition.

The continued lowering of the temperature during the whole duration of the fever must be the aim of the hydrotherapeutist. It is of the utmost importance, in the methodical treatment of fever, to use as few applications as possible during the twenty-four hours, and still not to permit a single exacerbation to be left unabated. Neither during the day, nor during the night, should we omit to be on the *qui vive;* and we must not allow a considerable increase of temperature to remain unabated for any length of time without lowering it by the ready means alluded to. That this can be done with the best possible result, even where a rapid reheating of the body takes place, has been proved by Jurgensen, whose patients received eleven baths each during twenty-four hours, his pains having been crowned with the happiest results.

Having incidentally mentioned the indications and the effect produced by the sixth method, namely, the shower-bath, in connection with the other procedures, it remains for me yet to refer to the seventh mode of treatment, known by the name of Brand's and Priessnitz's applications. By means of these we can greatly retard the occurrence of exacerbations. Careful thermometric observations have taught me that after the use of wet cloths applied repeatedly to the trunk, and placing the patient in bed after the bath, without having been dried, the lowering of the temperature persists longer after the abstraction of heat, when the temperature has again become normal, than would be the case had this mode not been used. These applications are made in the following manner: A bed-sheet having been folded four, five, or six times, after having been well wrung out of cold water, the greater part of the chest, the whole abdomen, and the back, from the lumbar region down to the sacrum, are covered with it. This application, consisting of several layers, prevents it from acquiring the temperature of the body too rapidly, and it does not require to be changed too often. The inconvenience this mode causes to the patient, the disturbance during sleep, are by far outweighed by the beneficial result derived therefrom. The applications need not be made oftener than every hour, exceptionally every half-hour. The wetting of the bed has been raised as an objection, but those who have some experience in the water-treatment will find no difficulty in avoiding it. We have only to put a larger dry sheet around the trunk, by laying it on the chest and bringing it together behind, without much disturbing the patient, and drawing the underlying dry sheet over it.

The manipulation is a very simple one, the application can easily be changed, and the wetting of the bed is easily prevented. Besides the beneficial effect produced of preventing the quick reheating of the body, and the lowering of its temperature, such applications influence favorably the disturbances of the abdominal organs. Diarrhœa, tympanitis, and pain, very often disappear as if by magic. The main advantage, however, derived from these applications is the circumstance that the general modes of cooling the body, namely, the baths, need not be applied so often during the twenty-four hours. Four, five, or six baths during the twenty-four hours are quite sufficient in most cases; if we make use of the local applications also, we usually succeed in carrying the patient safely through and keeping the fever down.

The continued control of the intensity of the fever, I repeat, is the principal object of methodically applied hydrotherapeutics in febrile diseases. Dr. Krügkula and Leube are the only authorities who had much experience in the water-treatment of fevers, and yet deny that under this treatment the mortality is greatly diminished, and the duration of the fever often cut short. Their patients only bathed from 6 o'clock A. M. till 10 P. M.; as they state themselves, from 10 P. M. till 6 A. M. no means were used to lessen the fever-heat. Eight hours out of twenty-four they left their patients without treatment. For this reason we may justly exclude these two unfavorable statistical data as irrelevant and not to be included in those tables on the results of the water-treatment of fever which were made in accordance with the rules laid down by all the other observers cited above. I desired, however, to present to you not only the names of those authors who report favorably, but also those holding an opposite view to that which I have quoted. The two gentlemen named are the only ones, as far as my knowledge of the literature of the subject under consideration extends, who dissent from the others, and have made an adverse report. I have shown, I hope to your satisfaction, and it must be admitted by every unprejudiced mind, that the fault lay in the method and not in the water-treatment, even in these single exceptions.

Winternitz says: "In the water-treatment of fevers, and here, perhaps, more so than in many chronic diseases, it is of the utmost importance not only to know what we have to use, but how to use the proper remedy."

Permit me, in conclusion, to recapitulate in a few words the principles upon which, under otherwise similar circumstances, the reheating of the body after the abstraction of heat therefrom depends:

First of all, we have to consider the celerity of the abstraction of heat, the temperature of the water used; next we must take into consideration the mode of bringing the body in contact with the water; then the duration of the interval between the paroxysms, if I may so term the period of time intervening between the cessation of one febrile movement and the commencement of the other, must be carefully observed; we must also watch the precise degree of the lowering of the temperature by the repeated use of the thermometer. It can be put down as a law that the reheating of the body takes place the quicker, the colder is the heat-depriving medium applied, the more force, such as friction, movement of the body or of the water, is used. If we desire to retard the reheating of the body, the applications must be made at longer or shorter intervals, and last for a longer or shorter period of time, proportionate to the degree of fever.

If we follow these plain and simple rules, and if we bear in mind the points mentioned regarding the different modes of the water-treatment, it will not be difficult, I think, to shape our treatment in any given case, and to use one or the other method, as best suited to combat the fever.

Art. III.—*On the Relation of Surgical Tendencies to Surgical Advances.* By W. R. Bartlett, M. D., New Haven, Conn.

Surgery, which in much of the past was not a science but a manual performance, requiring of its followers only dexterity and coolness, now takes a wider range of action, and demands a thorough knowledge of the anatomy of the human organism, a full comprehension of the laws which govern the body in its healthy functions, and of those processes which bring about its pathological conditions. This is what Medicine demands now, and what it has called for from the beginning, and the principle has always been acted upon dimly and imperfectly, though it may have been only to a certain governing extent. So Medicine has claimed a superiority over Surgery, given to it the *rôle* of a subordinate, and set it in between the narrow bounds of mechanical action. The chirurgeon of the early days, whose whole office was to do what his superior told him, was the exponent of that which was conceived of surgery then.

But such a state could not always prevail in the advance of knowledge, and step by step has the art pushed upward, taking and assimilating all that medicine gave, and adding to it, till to-day we recognize the paramount truth that surgery and medicine are blended and bound together by inseparable bands, and that the progress of one is that of the other, and every discovery an added fact for both. My purpose, then, in this paper is to consider somewhat in detail the influences which have moulded surgery up to the present time, and to deduce therefrom some observations of practical value for the future:

1. The early tendencies, for lack of knowledge and from necessity, were on the one hand toward boldness and recklessness, and on the other toward timidity and inaction. I refer now more particularly to the time which succeeded Galen, for there were periods preceding when science, as it then existed, was applied to the practice of surgery, and this was notably true of the time of Hippocrates and Celsus; but after Galen surgery sank to the low level of chirurgery, and the operator was simply the tool of the medical man with his poor stock of knowledge at the best.

But all this time humanity was suffering from surgical ills, and the poor chirurgeons were doing the best they could in their blind, bold way, to relieve them. Imagine a case of strangulated hernia, for instance, in the time of Paulus Ægineta, who lived A. D. 670. Would any surgeon of the present day dare undertake the operation with an anatomical knowledge of the disease as scanty as then possessed? Yet it was done, and boldly done; necessity nerved the hand and urged on the operation where now scientific knowledge would be the support and guide. And again, suppose a case of membranous croup in its worst form: here once more necessity begot courage and led to the operation of tracheotomy. There were operations which experience had taught to be the only alternatives from death; so it is not a matter of wonder that they were done. But passing from them to the class where it was less a matter of necessity and more of expediency, we find them still operating successfully, as for instance in lithotomy, and for the removal of formidable tumors in various localities.

Our main proposition is well illustrated by the history of two operative measures: the first showing how necessity led to recklessness; and the second, how ignorance prevented the doing of what has now become established practice. The surgical treatment of aneurism bears upon the first point. In the time of Celsus, and for a long period afterward, it was the custom to lay open the sac, and, after turning out its contents, apply the hot iron to the affected artery. The effect of such a procedure was most fatal; after the eschar separated, hæmorrhage ensued, and nearly every patient perished sooner or later from its repetition. This was the best they knew, and, as the result showed, was a piece of sheer desperation. This method was followed until the time of Ambrose Paré, and that most memorable epoch in surgery, the introduction of the ligature, which was a stride forward, and then the old operation for aneurism was looked upon with just horror. But what was done now? The artery was ligated above and below the tumor, which was then laid open, its contents evacuated, and the cavity stuffed with lint, the object being to heal the wound from the bottom; and occasionally the whole tumor was extirpated at once. The results of these procedures, though better than the preceding, were often most disastrous, death ensuing from inflammation or secondary hæmorrhage; or life was perhaps saved by a resort to amputation. So it went on until near the close of the last century, when John Hunter, applying science and reason to a hitherto mechanical procedure, conceived the idea of tying the artery above the tumor, which, as we all know, was successful, and opened a new era in the history of this dreaded disease.

The second point is well demonstrated by the history of ovariotomy. Ignorant of the anatomy of the parts and the pathology of the disease, the older surgeons had no resource but palliation for this formidable malady; tapping was resorted to from time to time, but it was reserved for that American surgeon, Ephraim McDowell, in the year 1809, to successfully undertake and perform this piece of surgery; but even then opposition continued to meet it, grounded first upon its inutility, and then upon its danger; but still it was practised, and to-day Spencer Wells and others have firmly established it as a sound and rational expedient of surgery.

2. A second tendency of surgery has been, and is now to a certain extent, an undue estimate of one man's authority in a given class of cases. This was in a measure a necessity in early days, both from the social status of the time as well as the meagre facilities for the interchange of knowledge. One can readily see how this principle operated and tended to keep surgery wholly within the bounds of manual art. Let a

great man like Celsus declare in favor of a certain method of operating, as for instance the central incision in the operation of lithotomy, which he advocated, and the whole body of operators would carry out the same plan in their individual practice; and even if some fertile and daring one had done differently, the chances were very great that no one would have got the benefit of it. For there were days when men lived without the printing-press and all the other means of intercommunication which we now have. So the principle was: "Celsus operates in this way, I must do likewise; he has done it; if I follow him, I can do it also." Want of knowledge was supplied by blind confidence, and the very incentives to a broad and liberal progress were stifled at the outset.

This subjection to one idea is well illustrated in the history of operations which have been performed from the beginning of necessity. Year after year surgeons clung to the old circular operation in amputations. They divided tissue and bone upon the same level, leaving the bare bone to exfoliate, and the wound to close by a long, tedious process of granulation, and all this because the idea prevailed that in no other way could a permanent union take place. Into many a surgeon's mind doubtless the thought entered: "Cannot this process be simplified; would it not be better to cover this ghastly chasm with a fold of integument?" Yet it was not until the time of Cheselden that this was effectually done, and not till the seventeenth century that the flap-operation was established in its position. No doubt there were men who all this time had been using reason by performing amputations upon rational principles, but what could they avail against the rushing current which carried along the great body of operators?

3. Other potent agents which have ever exercised a moulding power upon surgery are found in the political and civil history of the world. Whatever has influenced man in his mode of living and course of action has had its effect, directly or indirectly, upon the progress of surgery. Warfare has from the first been one of the most potent of these shaping forces. Wherever bodies of men have met in the shock of battle, be their implements stones, or arrows, or fire-arms, there have been mangled bodies, torn limbs, and horrid disfigurements,

for removal or repair. Each class of weapons has had its own kind of injury, and consequently demanded a peculiar method of treatment. So here necessity has led to prompt and decisive action, and opened up a field for actual experiment and observation which has exerted a great and beneficial influence upon surgery as a manual art. When men fought with arrows, and battle-axes, and bludgeons, there were punctured wounds, and clean cuts, and broken skulls. When the period of gunpowder and fire-arms was reached, there sprang from them new indications for treatment; mangled limbs required attention oftener, and the checking of hæmorrhage and the need of amputations stimulated to progress in that line of action.

Turning from war to the pursuits of peace, we have to speak of the different inventions for carrying on the industries of the world. As men laid aside manual for machine-power a new feature appeared, and all the varied forms of injuries peculiar to mechanical contrivances exercised the skill and patience of surgery. This is especially true of the use of steam as a motive-power.

Again, the religious and moral sentiments of different periods of the world have had a certain controlling influence over surgical progress, both by repressing investigation and also by positive and authoritative disapproval of certain methods. The old Greek made it a part of his code of honor never to submit to the operation of amputation; preferring death to dishonor, he could not go armless or legless among his fellow-men, ever bearing with him, and open to the derisive gaze of the world, the marks of his dishonor.

At one time morality forbade the study of anatomy, and all its mighty advantages were withheld from the art. Papal edict denounced surgery as unworthy the attention of honorable and enlightened men, and so the Church turned its back upon one of mankind's most noble pursuits, and chilled by neglect one of religion's best and truest offspring. Then the Church anathema meant something, and the edict of Pope Innocent II. was actually as infallible as the Vatican Council could desire for Pius IX. to-day.

4. We now come to consider the tendency of science in

surgery. This has been diverse in the various periods of its history; in minor points it has differed, and its application to-day is not what it was in the sixteenth century. Science has ever laid down its principles, and to a certain extent men have acted upon them, but not all these principles have stood the test of time, or determine the course of surgery now; the point to be emphasized is this, that the influence of science has been one of continual uplifting, and consequently the source of the highest hope. By its aid surgery has called to its support all departments of knowledge, and compelled them to share with it a portion of their bounty, and in return has given again, thus helping to establish that law of mutual aid in which alone is the highest strength. So through the last three centuries the conviction has grown in the minds of surgeons that science in its application is an essential constituent of a sound and progressive surgery, and as science has developed and become a familiar term, by so much has its importance been realized.

What, then, is scientific surgery now?

I answer, it is progressive, and that surgery which applies all the principles of knowledge to the art. It looks upon a man with a shattered arm and says, "Can I not save, may I not apply some kindly law of healing drawn from the experience of the past, and the knowledge of the present, that will restore it to usefulness?" Or, again, that surgery which, looking with horror upon an epidemic of gangrene or pyæmia, coursing through the whole of a hospital, seeks not to check it by means directed to the patients alone, but finds an ulterior and certainly removable cause in a vitiated atmosphere, or in all those local causes which go to make up the term "hospitalism;" or, making the application to an individual disease, stone in the bladder, I quote the propositions of Sir Henry Thompson. He says, 1. "We want the best operation for the removal of large stones from the bladder." 2. "We want the best method for discovering the *existence* of small stones in the bladder." And it is in this second proposition that he sees the greatest hope of progress; for, if the stone is discovered when no larger than a pea, the ready method of crushing removes the difficulty, and the mortality is of course the smaller, for every layer added to the stone proportionally increases the danger, and calls more often for the perilous operation of lithotomy.

Dr. Van Buren, in his treatment of a kindred and more destructive disease, carries out the principle upon which we are dwelling. I refer to the preventive treatment of retention of urine in the aged from enlarged prostate and atony of the bladder. The end is attained by the regular systematic passage of the catheter in the very incipiency of the trouble, thus preventing the closure of the urethra and paralysis of the bladder from over-distention, so prolonging many a life, and obviating that terrible and destructive class of surgical diseases.

To sum up, scientific surgery is preventive, conservative, and progressive. It does not wait for a disease to mature, but seeks out the primal tendency and cuts it off; if not successful there, it brings to bear upon it the law of conservatism, and inch by inch contests the ground, and saves if possible the organ in at least a measure of usefulness; failing there, it is bold and radical, more ready to cut than to abstain. Having now considered the more prominent influences that have been brought to bear upon surgery in its history, we come to the question, "What is the condition of surgery as a whole to-day, and what course should it take in the future to reach the highest perfection?" As far as relates to the matter of operations, it has reached a high state of perfection. All operations that in any way tend to the relief of sick or wounded humanity have at some time been performed, and perhaps all successfully that will ever admit of success. Those which have not taken a permanent place are few in number. They are as follows: Gastrotomy, colotomy, ligation of the distal extremities of the arteria innominata, and of the abdominal aorta for aneurism.

One remove from these stands the class of debatable operations. They are few in number also, they all have a place in surgery, but as yet the indications for their performance are not plainly drawn; such are trephining, excision of cancers, and tracheotomy. Then we come to the largest and only remaining class, about which the chief question is, "How can they be avoided?" Of instruments and appliances surgery has a full supply; the greatest progress there must be in the line of improvement. Anæsthetics meet another want, and though not by any means perfect, yet in ether we have one safe and reliable, whose chiefest drawback lies in its unpleasantness. So, then, in the manual part of surgery we possess the means of doing all that is required, and surgery as science, we have already shown, has attained a high state of perfection. Now it only remains to consider, what ought to be the progress of the future? An analysis of the points thus far made will shed some light upon this inquiry. We find that there have been two controlling forces in surgery. They are the force of *necessity* or *manual art*, and the force of *science* or *knowledge*. There never has been a time when the power of these two elements has been equalized; one or the other has prevailed, according to the period of time, and the varying social status of the world.

We have seen that necessity largely moulded surgery in the early days, and knowledge on the other hand in later times. Necessity, then, has prevailed the longest, and thus has raised operative surgery to its high level, while in the province of knowledge we have but just begun our journey. No one tendency should be fostered to an extreme; there is such a thing as becoming too scientific, and again such a thing as becoming too practical. It will not do to let a patient die of gangrene, under the delusion that an antiseptic course of treatment is to save the member, when experience plainly shows that delay is death. Neither will it do to amputate a finger, when our knowledge of the reparative powers of Nature tells us that it may be saved. Practically we are to use science just so far as it has become fixed, and to let it uproot the past only as its light shows the error. Theoretically, science is to take the vanguard, and push far out into the unknown, searching out the mystery of nerve, and bone, and muscle, and all the processes of life and death, bringing back its new treasures for elaboration and use.

Clinical Records from Private and Hospital Practice.

I.—*A Case of Double Hernia on the same Side; Strangulation; Operation; Recovery.* By James S. Green, M. D., Elizabeth, N. J.

Michael Burns, aged twenty-six years, of stout build, good habits, a carpenter by trade. Had been the subject of oblique inguinal hernia of the left side for nine years. Had never had any difficulty in reducing it, when in a recumbent position, until Monday evening, May 3, 1875, when, after a hard day's work at lifting heavy timber, he felt pain in his left groin, and found his rupture "down," and could not return it. Was soon taken with nausea and vomiting, and pain around the umbilicus.

Dr. T. N. McLean was called, and with the assistance of Dr. Alonzo Pettit reduced the hernia after the administration of chloroform.

The vomiting still continuing, the next day, May 4th, at 12 m., Dr. McLean called me in consultation. Found patient with anxious face, still suffering pain in the groin and about the navel, with hiccough and nausea. Pulse 115, temperature $101\frac{3}{5}$°, respiration 18; tongue coated with white fur; urine dark-colored; stools none. Upon examining the inguinal canal, can find no hernia, and can pass the finger up the canal to the internal ring, without difficulty.

But by pressing upon the abdomen above the inguinal canal, from above downward, the fullness of the sac will then appear, which, however, vanishes as soon as the pressure is removed. Ordered musk and camphor for the singultus, which troubled the patient, a large enema of warm soap-suds to be given *ad plenum*, and at night an hypodermic injection of Magendie's solution of morphia.

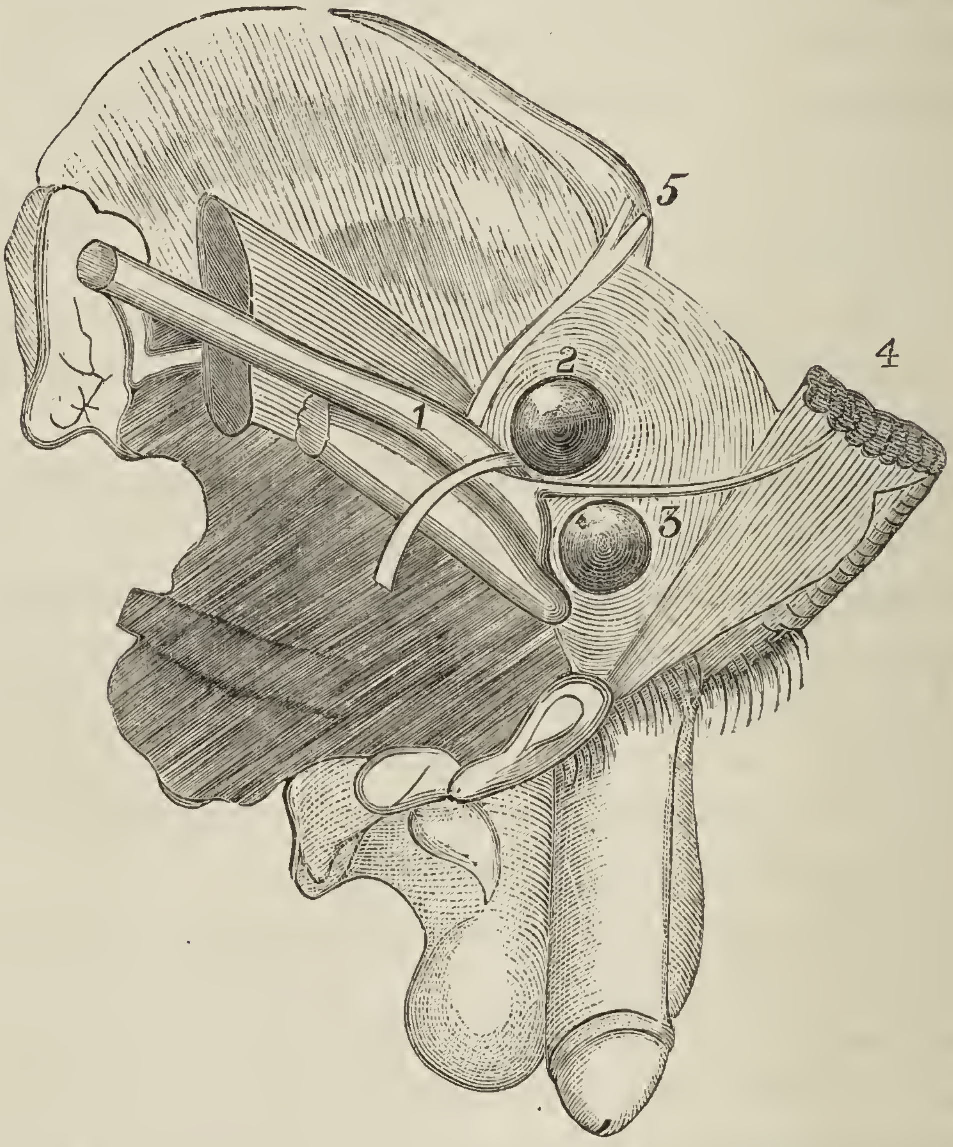
May 5th.—11 a. m., pulse 110, temperature 101°. Has less pain, and has had a good night's rest. No hernial protrusion, although he says the gut came down during the operation of the enema.

9 p. m.—Vomiting and hiccough have returned, also pain at the umbilicus, and in the hernial sac.

No tumor discoverable in the inguinal region.

Ordered hypodermic injection of Magendie's solution of morphia, with a turpentine-stupe over the bowels.

May 6th, 11 A. M.—Has had a very restless night; vomiting and hiccough still continue. Some tympanites. Pulse 120, temperature $102\frac{3}{5}^{\circ}$, respiration 22. Countenance anxious; umbilical pain increased. No hernial tumor apparent. Determined, after consultation, to operate and explore the inguinal region.



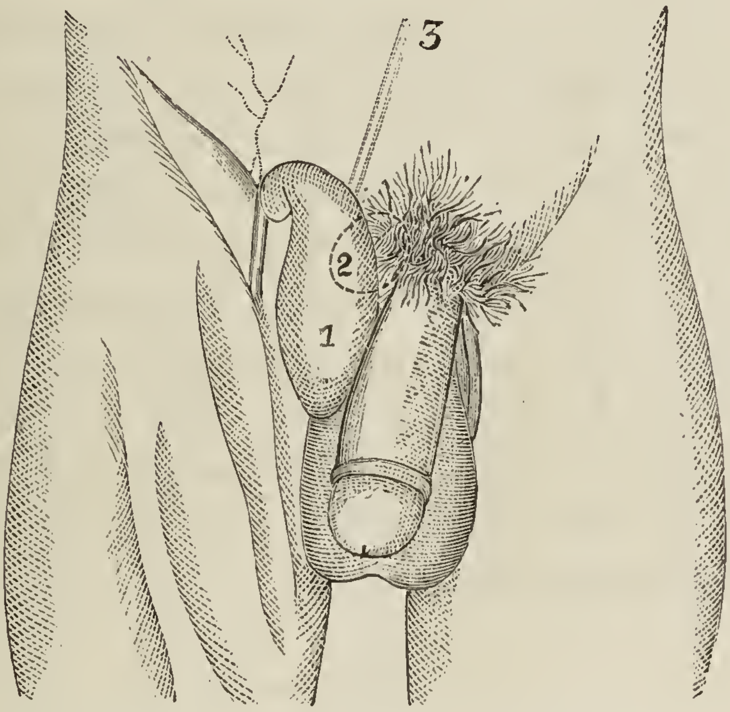
VIEW OF THE MOUTHS OF THE SACS OF OBLIQUE AND DIRECT HERNIA, ALSO THE RELATION OF EPIGASTRIC ARTERY.—After Maclise, pl. 39.

1. External iliac artery; 2. Oblique hernia; 3. Direct hernia; 4. Epigastric artery; 5. External iliac vein.

Assisted by Drs. McLean, Pettit, and J. Otis Pinneo, the patient being under influence of chloroform, I commenced the usual operation for strangulated hernia.

Upon coming down to the sac, it could not be rolled upon the gut between the fingers. Having very carefully opened the sac, it was found to be adherent throughout its whole extent to the intestine. After detaching the intestine, which was readily done, upon passing the finger through the sac to the internal ring, no stricture was found, and the intestine, which was of a healthy color, was returned easily into the cavity of the abdomen.

Upon examining the inguinal region nearer the pubis, at a point directly behind the external ring, below the tendon of the internal oblique and transversalis muscles, a direct inguinal hernia was found, about the size of a pigeon's-egg, tightly strictured. The stricture was easily removed by the edge of the finger-nail, and the intestine returned.



1. Oblique hernia; 2. Direct hernia; 3. Epigastric artery.

9 P. M.—Pulse 108, temperature 101°, respiration 12. Has been kept steadily under the influence of morphia since the operation. No pain in the hernial sac or bowels.

May 7th, 10 A. M.—Pulse 128, temperature 100°, respiration 10, tongue clean; 9 P. M., pulse 132, temperature 101°, respiration 10. Has been vomiting bilious and sour matter all day. No fecal odor. Continued morphia and turpentine-stupe. *Diet*, toast-water and gruel.

8*th*, 9 A. M.—Vomiting and hiccough ceased at 12 o'clock, midnight. Rested well. Passed considerable flatus per anum. Pulse 130, temperature 101°, respiration 10; 9 P. M., pulse

112, temperature $98\frac{3}{5}$°, respiration 12. At 3 P. M. had a passage from the bowels of hard scybala.

9th.—Pulse 116, temperature $98\frac{3}{5}$°. Had a free alvine evacuation from ol. ricini; 9 P. M., had a chill, followed by fever and delirium. Ordered, after fever abates, quinia sulph. gr. v every three hours.

10th.—No return of intermittent to-day; 9 P. M., pulse 90, temperature $98\frac{3}{5}$°. From this time the patient has steadily improved.

The interest of this unusual case consists in the existence on the same side of two hernias, both of which were strangulated: one *an oblique* inguinal rupture of long standing, in which the intestine was adherent to the sac, and which was relieved by taxis at the commencement of the patient's illness; and the other *a direct* inguinal hernia of recent origin, which was undiscoverable until after the explorative operation was attempted, and which was the real seat of the patient's danger.

Another point of interest was, that the tumor of the old oblique hernia could be reproduced by pressure upon the abdomen above the internal ring, and that the swelling immediately disappeared upon the removal of the hand, the flatus filling the intestine returning into the abdominal cavity, showing that the stricture had been removed by taxis, but that the intestine was adherent to the sac.

II.—*Persistent Hyaloid Artery.* Report of Three Cases. By Peter A. Callan, M. D., Assistant Surgeon to the New York Eye and Ear Infirmary.

While examining the scholars' eyes in two public colored schools last spring, we found three cases of persistent hyaloid artery.

The recorded cases of this anomaly are comparatively rare, and we might naturally infer that it occurs more frequently in the colored than in the white race, finding three cases in something less than five hundred colored children's eyes. The left eye was in each case the one affected.

Rebecca R. K., colored, aged nine years. Eyes emmetropic. Vision with each eye $\frac{20}{20}$, or normal. Ophthalmoscopic examination of right eye showed eye to be normal. Left eye, under examination, was found likewise normal, with the exception of vessels on optic disk. Arising from the lower and inner surface of disk was a large artery, filled with blood, which projected into the vitreous; it was accompanied by a vein; the vessels were not unlike a corkscrew, the vein being wound around the artery. The artery was smaller than the vein, and was central, with blood of a lighter color than that contained in the vein. Whether it was an artery doubled on itself, or an artery and a vein, may be open to question, but from my examination I was inclined to the latter view. In the Wells-Leibrich case of artery accompanied by a vein, the vein could be seen entering into one of the venous trunks on the optic disk. In the present case there was no visible connection of either artery or vein with the other vessels on the optic disk. When the eye was quickly moved there was no visible alteration in the position of the vessels. The length of the vessels from disk was 4.5 mm.

Philip G., colored, aged seventeen years. Eyes hypermetropic. Vision with each eye $\frac{20}{20}$. Right eye, examined ophthalmoscopically, showed the eye to be about $\frac{1}{30}$ hypermetropic, otherwise healthy. Left eye showed the same amount of hypermetropia, and arising from the centre of the optic disk was a large arterial trunk, filled with blood, which projected into the vitreous a distance of 6 mm.

It was button-shaped at its end, and it divided into two small branches, which were entwined about the main trunk, returning with it to the disk to be distributed to the retina, one branch going to the upper and inner portion, the other branch to the lower and inner part of retina. It had no corresponding vein. On quick motions being made with the eye there was a slight perceptible movement in the position of vessels.

Thos. M. K., colored, aged eighteen years. Eyes myopic. Vision of right eye, with a concave glass, $-\frac{1}{30}=\frac{20}{20}$. Vision of left eye, with a concave glass, $-\frac{1}{30}=\frac{12}{20}$. Ophthalmoscopic examination of right eye showed that there was a myopia of about $\frac{1}{30}$, and no posterior staphyloma; media clear, and fundus healthy. Left eye, examined with ophthalmoscope, presented about the same amount of myopia, with slight haziness of the vitreous; no posterior staphyloma. Arising from the lower main arterial trunk on the optic disk, near the choroidal ring, was a small thread-like vessel, which was destitute of blood, extending very near the posterior capsule of lens. The eye being moved in different directions, the remnant of artery made extensive movements in the vitreous.

In the first two cases there was perfect vision, but in the affected eye of the last case the vision was only $\frac{12}{20}$, caused by the condition of the vitreous.

III.—*Strangulated Femoral Hernia; Operation; Cure.* By D. C. Jones, M. D., Calvert, Texas.

On the morning of April 23, 1875, I was called to see Sarah ——, negress, aged thirty-five years. Symptoms, great nervous depression, cold and clammy perspiration, and stercoraceous vomiting. On further examination, found a complete femoral hernia on the right side; learned that it had existed since her fifteenth year. The strangulation had arisen about thirty-six hours previous to my visit, from an injury received in removing some furniture. Failing at reduction after the induction of complete muscular relaxation by chloroform, I proceeded to operate, assisted by my associate in practice, Dr. D. H. West. An incision was made along Poupart's ligament, and a second falling perpendicularly from its centre, over the tumor. The different layers were divided by the bistoury and director. Arriving at the sac, I found it to contain neither serum nor omentum, but to be agglutinated to the prolapsed ileum two-thirds of its extent. After peeling the peritoneal coat from the bowel, the latter was found of a very dark hue and cold to the touch. There were very extensive adhesions, from the falciform process of the fascia lata to the crural ring. Owing to gaseous distention, the bowel was withdrawn sufficiently to admit the severing of the adhesions—the line of demarkation appearing as if a ligature had been applied to the part. The bowel was replaced and the wound closed by deep sutures. The depression was counteracted by the vigorous administration of anodynes and stimulants, with such auxiliaries as the indications demanded. The wound healed by first intention, and the patient is radically cured.

The unusual features in the case were, the extent and duration of the adhesions, and the rapid recovery after such unfavorable constitutional symptoms.

IV.—*Anchylosis of Temporo-Maxillary Articulation of Long Standing; Fracture of Right Condyle; Atrophy of the Depressors and Contraction of the Elevator Muscle of the Inferior Maxillary.*[1] By D. H. Goodwillie, M. D., D. D. S., New York.

The following interesting case was sent to me by Dr. L. A, Sayre, and it so well illustrates the treatment of such cases that I embrace this opportunity to present it.

The history, as far as I am able to make out, is as follows: Mary C., of Tennessee, aged ten years, in May, 1870, five years ago, fell over the banisters to the floor below, and when she was taken up there was hæmorrhage from the mouth and from a wound on the chin.

A dislocation of the inferior maxillary and a fracture of the right condyle were diagnosed by the surgeon who was called in the next morning. There was very much swelling over the articulations, particularly on the fractured side. The swelling and discoloration extended down on the neck and up on the side of the head. After inflammation subsided, motion was not again reëstablished, and the jaws remained closed. In October of the following year the mouth was forced open at one operation more than an inch, but when the inflammation subsided the jaws became closed as before, and so remained until she came under treatment last October.

The appearance of the case when it came under my care was as follows: The superior jaw in front considerably overhung the lower jaw. There was a large prominence over the articulations, particularly on the side of the fracture. The meatus auditorius externus was considerably smaller on this side than on the other, which probably accounted for the dullness of hearing that she had. A scar was seen on the symphysis, extending more to the left of it than to the right.

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[1] Read before the New York Medical Library and Journal Association, May 21, 1875.

The depressors of the lower jaw, viz., the anterior belly of the digastric mylo-hyoid and genio-hyoid, were very much atrophied by fatty degeneration, giving her the appearance of what is commonly called a double chin. The contraction of the muscles could only be excited by a powerful primary current of electricity. She had apparently lost all volition over these muscles. There was a firm contraction of the elevator muscles of the jaw, particularly the masseter and temporals of the fractured side. The large amount of callus thrown out at the fracture had bound the muscles very much together.

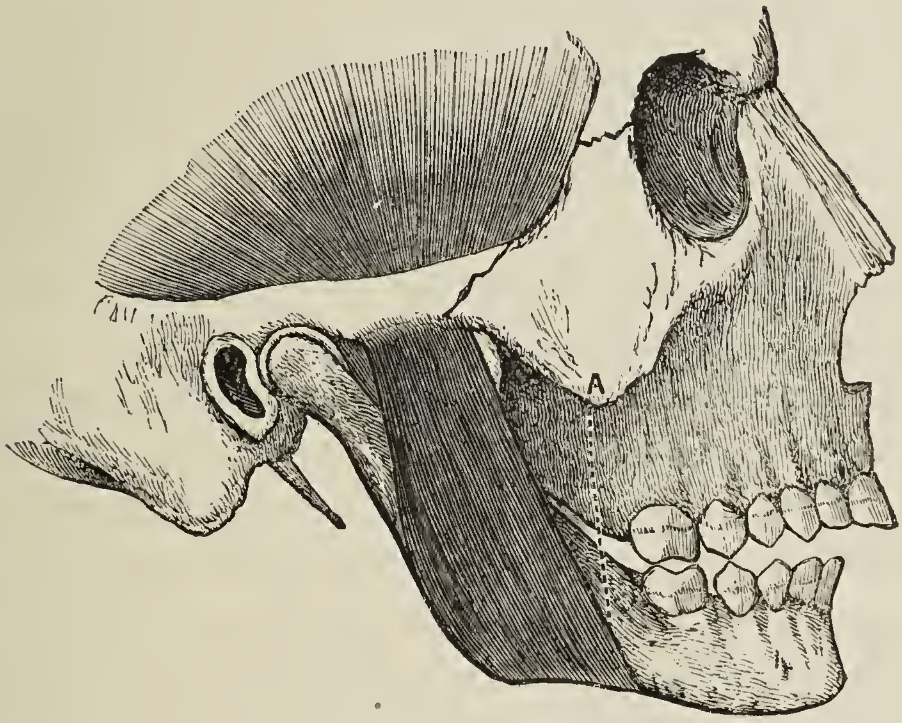
On looking into the cheeks the jaws are seen firmly closed on each other, the back teeth only touching, and that on the points of their cusps; they do not lock each other, as is normal.

The inferior maxillary appears to be well developed, and the teeth are quite regular. All the deciduous teeth are gone, and the permanent ones that appear at her age, with the exception of a bicuspid on the right side, are present. All the opposing teeth of the upper jaw are present with the exception of the right canine, the deciduous one still remaining, but loose.

All the permanent teeth with these exceptions are present, from the first molars forward. The position of these teeth can be seen in Fig. 1.

The superior and inferior front teeth do not touch each other when the mouth closes, for the reason that, from the great force received on the chin at the fall, the condyles were forced upward and backward, so that the whole lower jaw is set back on the superior about one-quarter of an inch. This not only destroys the right articulation of the teeth, but the front ones are unable to close upon each other at all. Through this space she took her food, which was in liquid form or very soft. As the blow on the symphysis was received a little to the left, the effect of the force was very great at the right joint, so that there was a fracture of the condyle, and the head of the condyle was forced in upon the meatus (Fig. 1) and dislocated outward. This lateral displacement was also present on the left side, but it is not now so apparent.

FIG. 1.



On passing my finger into the cheek of the fractured side I found that the anterior fibres of the masseter muscle had been torn from their origin upon the malar bone, and now the anterior portion of the muscle was about on a line with the union of the malar with the zygoma (Fig. 1, A). This muscle is very rigid, both from a structural change in the muscular fibres and from the great amount of plastic material from the fracture binding these together. Whether the anterior fibres of this masseter were torn from their attachment to the malar bone at the time of the accident, or at the time when the mouth was forced open some three years ago, I am unable to say positively, but I am inclined to think they were fractured at the latter time, as then the muscular fibres, having lost to a great extent their contractility, would be more liable to break than at the time of the accident. The left masseter was in a much better condition. In her endeavors to depress the lower jaw, the hyoid bone, instead of being made a fixed point from which the depressor muscles act, was raised, and the fixed point was at the sternum. The platysma myoides was brought into action and drew down the angles of the mouth, and the tongue was depressed by the action of the hyo-glossus and genio-hyo-glossus. These muscles are only the accessory depressors of the lower jaw, and in action raise the hyoid bone, whereas, if the depressors act, the hyoid bone remains a fixed point.

The condition of an articulation or muscle may be known by means of auscultation. In a healthy articulation little or no friction-sound should be heard. But when deposits are present, or there is a lack of synovia in the joint, the friction-sounds can be distinctly heard during motion. These sounds will be greater or less according to the amount of disease, and will disappear as health is restored to the joint.

A muscle in health has friction-sounds, which may be heard by any one applying his ear to the biceps, for instance, when in motion. These friction-sounds will vary according to the length, breadth, thickness, and condition of the muscle and the portion auscultated. A muscle in which there has been structural change will of necessity show a defect in the friction-sounds according to the amount of this change. As the function of the muscle is restored, so will the friction-sounds appear.

It will be seen by the above history and diagnosis that I had a case of unusual interest, inasmuch as I had to deal with anchylosed joints, atrophied depressor, and contracted elevator muscles. The certain properties that these muscles possess in their normal condition, such as irritability, tonicity, elasticity, and extensibility, when lost can only be restored by a gradual process. It is my experience, in all cases of fibrous anchylosis of this articulation of long standing, that the pathological condition of the muscles is a point on which turns success or failure in the treatment. Without *good muscular action* following the breaking up of an anchylosis, we need not look for success. I have never seen it.

Treatment.—By proper treatment after this accident the dislocated and fractured inferior maxillary could have been replaced and motion again reëstablished.

I first saw the patient on the 19th of October last. In order to make out a correct diagnosis, I put the patient under the full anæsthetic effect of nitrous oxide. I could detect the slightest motion in the joint, and found the elevator muscles very rigid, particularly on the fractured side. I then decided to make gradual extension every day, but not to the point of getting up any amount of inflammation, so that every day some little advance could be made.

In order to relieve my young patient of some amount of suffering during the long time it would require to treat the case, I determined to administer nitrous oxide every other day to begin with, and manipulate the muscles and joint under its effect; on the alternate days to go as far as the sensibilities of my patient would allow. But during the latter part of the treatment, when the depressors had become developed, the anæsthetic was administered nearly every day. Electricity was used daily, and a portion of each visit I used my fingers as electrodes in order that I might knead, rub, and roll the muscles. At first, however, the atrophied muscles required a stronger current than I could bear in my hands, but, as they became developed, the strength of the current was gradually diminished.

It now became necessary to have an apparatus for the gradual extension of the elevators, and the exercise so much needed in the development of the atrophied depressor muscles, and at the same time to break up the anchylosis.

Such an apparatus as has met this requirement will be seen in Fig. 2. One of the chief sources of interruption in treatment is periodontitis from the great amount of force used on the teeth. To prevent this, I protect them with an interdental splint of hard rubber. These splints at first are necessarily very small, and confined to the front teeth; but,

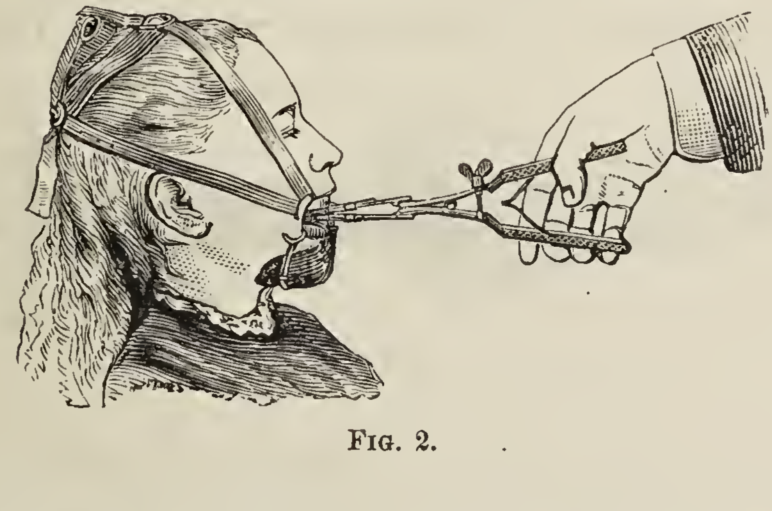


FIG. 2.

as the case progresses, longer and more perfect ones are made.

In this case the rubber splints were inclosed in metal splints made of German silver, as this metal is tough and unyielding. These splints were made fast to the teeth by straps that passed from strong wire arms at the sides to a skull-cap, and the lower one was strapped to a pad on the chin.

This pad was also attached to the lower splint by means of a ratchet and spring.

From the point of each splint an arm, three-fourths of an inch broad, extends out one and a quarter inch, and to these is clasped the oral speculum when in use (*see* Fig. 2). The inclined planes of the speculum pass in between these arms, and they are held by clasps. The inclined planes are attached by movable joints to a distending forceps, so that, when the handles are approximate, the inclined planes are separated at their attached ends. Each handle is made in two sections, and the spring that separates the handle is inclosed between them to protect them from injury.

In forcing the speculum between the splints, the instrument is grasped by one of the handles, and when in place both handles are approximated. If more force is desired, or the mouth is to be held open at any point, the screw at the handle may be used.

In stretching the masseter and temporal muscles I use an oral speculum that I devised some years ago (Fig. 3), as it has a great deal of power. It consists of a shaft, to the flat end of which are attached two wings or inclined planes, upon which the teeth rest. The other end of the shaft has a thread cut on it, and a screw; this passes through a handle, one end of which is wedge-shaped. By turning the screw on

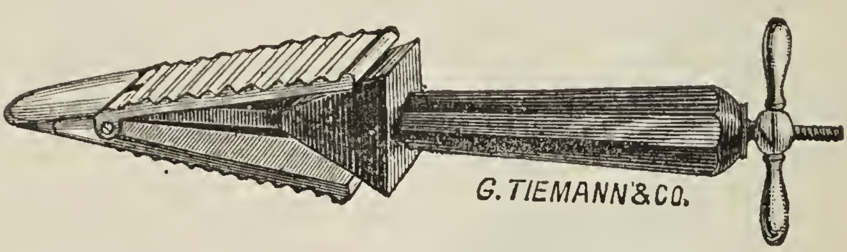


FIG. 3.

the other end of the handle, the inclined planes diverge or converge.

Fig. 4 represents a spiral-spring speculum for the patients to exercise on by placing it between the teeth and biting upon it. Longer springs are used as the mouth gradually opens.

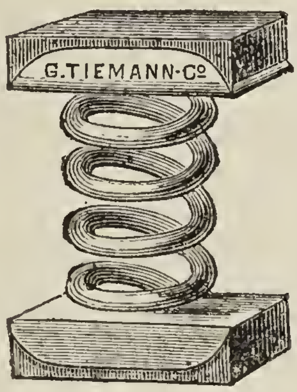


FIG. 4.

During the first few weeks of treatment the mouth was opened a little space and new splints made.

The following is a note of the treatment from time to time:

December 16*th.*—She begins to have a slight control of the atrophied muscles. Can put the tongue out of the mouth a short distance.

18*th.*—She put a teaspoon into her mouth for the first time since she received the accident.

January 1, 1875.—Mouth now opened three-eighths of an inch, with good motion, but not altogether by the action of the direct depressors. Patient complains of soreness over the masseter and temporal muscles.

11*th.*—Yesterday used considerable force under the anæsthetic. To-day complains of pain in right joint and muscles.

15*th.*—Patient says her jaw feels loose; by which she means that she has better control of it. At this time the atrophied depressors show some increased development, but she has very little volition in them, and so she uses the accessory depressors to open her mouth. In order to paralyze these muscles and bring the direct depressors into action, I directed her on all occasions at exercise to keep the tip of the tongue and the lower lip up against the lower incisor teeth. By this means the hyoid bone was made a fixed point from which the direct depressors act.

February 15*th*.—Volition returning in the atrophied depressors. Good natural motion one-half inch, and, after exercise with instrument, five-eighths of an inch.

March 16*th*.—Good natural motion five-eighths of an inch. Strength of electrical current much less. It is decreased as the atrophied muscles develop strength. I discovered, on looking into the mouth, that there was some loss of power in muscles of the tongue, particularly the palato-glossus. Patient speaks thick, as though the tongue were too large. Applied electrical current.

April 6*th*.—Patient complained of periodontitis from the force used yesterday. She caught cold by exposure yesterday. This passed off in a day or two, without interrupting treatment.

19*th*.—As there was great rigidity in the masseter of the fractured side, I performed myotomy under nitrous oxide, in the following manner: I passed my left index-finger inside and pulled the cheek out, the end of my finger resting on the anterior fibres of the superficial portion, a little below the middle. I pierced the sheath of the muscle, and passed the blade of the myotomy-knife up between the deep and superficial portions of the muscle.

My object in this was to free, if possible, the two portions of the muscle by dividing the interstitial tissue that might bind them. It was not my intention to cut any fibres of the muscle.

22*d*.—Swelling and soreness gone from the masseter. The mouth does not open any wider by this operation, but the motion is considerably improved.

May 5*th*.—Performed myotomy again in the same manner as before, and, followed by the diligent use of the spiral spring speculum, have improved both motion and extension.

15*th*.—Have now good motion seven-eighths of an inch, measurement taken between the points of the superior and inferior incisors. Tongue can now be put well out of the mouth, and she speaks better.

It is now only a matter of a little further time in continuing the treatment to get the mouth opened sufficiently wide. After I dismiss her I will advise the frequent use of the spiral spring speculum and electricity for some time, until action of the muscle is well established.[1] During this long treatment I have taken care not to overdo, so that every day the treatment was carried on with scarcely a day's interruption. I have seen the patient every week-day, and hourly exercise has been kept up during the day at home, first by using wedges of pure India-rubber, and, after the mouth was somewhat open, by the spiral-spring speculum.

It is only by this persevering treatment that any success can be expected. The age of this patient may be in her favor as regards the vital changes, but in other respects it was not favorable. It is very difficult to make children take the proper exercise, to the point of considerable suffering, as is required. They must be under constant observation. This is not so necessary in an intelligent adult, as then the direction can been carried out by the patient.

I have administered the nitrous oxide to this patient up to this time 120 times, giving more than 600 gallons of gas. I am at present giving it every day. There is no apparent harm, and she is in better bodily condition now than when she came under treatment. Her weight has increased.

This anæsthetic seems almost indispensable in the treatment of these cases.

CASE II. *Anchylosis and Contracted Elevator Muscles.*—The following case was one of two and a half years' standing before I saw it. I give it as showing the result of treatment:

In March, 1872, Miss M. K., of Brooklyn, aged twenty-one years, came to consult me concerning her closed mouth. Had some time previous an attack of acute tonsillitis of both sides. The inflammation extended to the temporo-maxillary articulation; the result was closure of the mouth. Masseters very rigid. Patient had also suffered from several ulcerated upper molar teeth, which had something to do with this condition.

With her past experience, and a dread that it would last her lifetime, she was now a most willing patient.

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[1] *June 5th.*—The mouth now opens one inch, with good motion. Myotomy was again performed, separating the posterior fibres of the masseter. The result was as favorable as on previous operations. Speech much improved. Extracted decayed first left inferior permanent molar.

Treatment was commenced and carried on for six months, and she was discharged entirely well. She sent me word a short time ago that she had now the free and full use of her jaws, after a lapse of more than three years.

Notes of Hospital Practice.

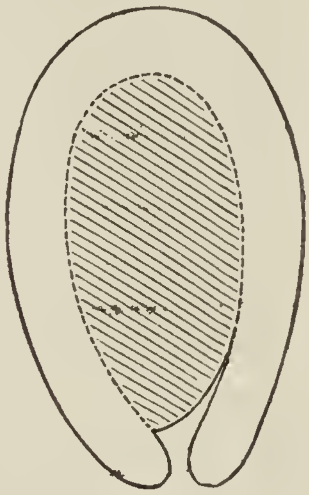
WOMAN'S HOSPITAL, NEW YORK.

CLINIC BY DR. THOMAS ADDIS EMMET.

June 15, 1875.

Treatment of Uterine Fibroids.—Gentlemen: The case which is now before you is one of fibroid tumor of the uterus, affecting the posterior wall, and will be better understood by this diagram on the black-board (Fig. 1). It is now fourteen years since I accidentally found that, by making traction on a fibroid, it could be removed without any attempt at enucleation, and this led me to investigate the matter from a point of view entirely different to that which I formerly held. The first case which I removed in this way was from a patient in this hospital; she had a fibroid distending the uterus to the size of full term of pregnancy, and also extending down into the vagina and filling it. A portion of the mass in the vagina was beginning to slough, and it was my intention to remove this putrescent portion in order to prevent blood-poisoning. For this purpose, I passed a slip-knot around the growth as high up

Fig. 1.



as possible in the uterine cavity, and made traction with the intention of preventing hæmorrhage. I cut away for some time with the curved scissors, but still found the vagina as much distended as ever with the growth, and on examining the uterus found it considerably reduced in size. I continued removing the tumor piece by piece, when accidentally I cut the ligature. To my astonishment there was no hæmorrhage, and I kept on pulling down portion after portion with the tenaculum till a pedicle not thicker than the index-finger was reached. Previous to the operation, I had supposed that the greater part of the tumor was buried in the uterine tissue, but, from the obstruction in the vagina, was unable to make out its attachments with my finger. After the operation, the uterine cavity measured only five inches in length. Not more than an ounce of blood was lost during the operation, and the patient recovered without a bad symptom.

From the time of this operation, the development of my views on the subject has been gradual, and it may be more satisfactory to give you the deductions I have arrived at than to follow out the matter in detail.

It is my conviction that fibroids become pedunculated only when directly influenced by the force of gravitation, which causes uterine contraction. I do not believe that they have a capsule proper—the only capsule being the mucous membrane of the uterus, covering their projection—the only line of demarkation between them and the uterine wall being the difference in density of the respective tissues. A very important change takes place in the muscular fibres of the uterine wall immediately over the tumor, from pressure. It seems to be a species of atrophy or degeneration, and is apparently the result of the long-continued presence of the tumor. This may be demonstrated by placing the hand over the uterus when in active contraction, and it will be found that a depression exists corresponding in extent to the tumor beneath. If you look at this diagram you will see my view more plainly (Fig. 2). If the contraction is prolonged, the extent of the depression will lessen just in proportion as the tumor may be forced into the uterine canal. About the circumference of this neutral space of uterine tissue, forming the outer wall of the tumor, the muscular action is more marked than at any other point, the greatest action being naturally at the seat of irritation. This neutral surface, when thus encircled by a contracting band, continues to be crowded in as rapidly as the space below becomes vacated, and the tumor pedunculated in proportion to its advance into the uterine canal. It is not yet clear to my mind whether or not any real displacement of this neutral surface takes place, but I am rather inclined to the view that a ridge is formed around by the damming up, as it were, of the contracting muscular wall, the neutral space acting as an obstruction.

Fig. 2.

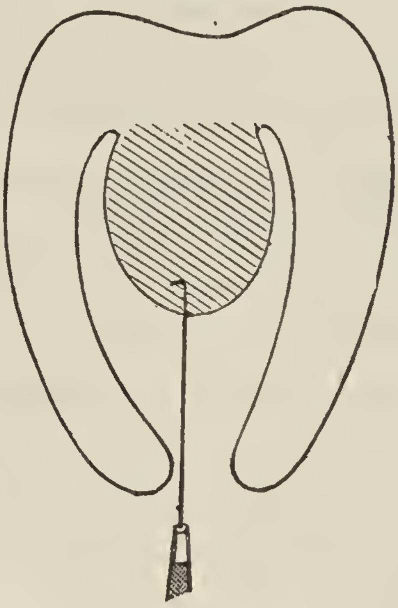
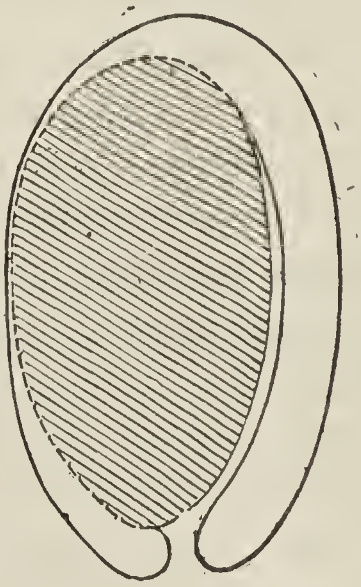


Fig. 3.



Now, when traction is made on a tumor situated as you see here (Fig. 3), the uterus closes in behind it, and in this manner we can account for the fact that, before making the traction, the base of the tumor may be very broad, and after we remove it piecemeal and get down to the uterine wall we find a pedicle not thicker than a lead-pencil. A familiar example of this fact may be made by supposing the mass to be embedded in India-rubber, the contractility of the rubber being sufficient to close in as the mass becomes removed, and fill up what would otherwise be a cavity.

As regards the histology of uterine fibroids, it is the opinion of pathologists that they are uniform in structure, and in them the muscular tissue of the walls becomes incorporated; but, from some anomalies which I have seen, I am of the opinion that the matter requires more thorough investigation; I think also that when we have a subperitoneal fibroid we have a prolongation of it into the uterus, but whether this is true in every case must be verified by future observations. To illustrate this fact I will mention a case in which I assisted another physician. An examination of the uterus showed it to contain a large fibroid, presenting through a well-dilated os, and the lower portion of the attachment was two inches within the canal on the anterior wall. The chain of the *écraseur* was passed around the growth, but slipped off. It was reapplied but seemed to include a larger extent than previously; this was due to the presence of two fibroids, one overlapping the other; as soon as the *écraseur* had cut through the bite which it had taken, I passed my hand within the uterus and attempted to break down and tear away the remains of the tumors, as the hæmorrhage, which had been excessive since the beginning of the operation, increased as the operation advanced. As I passed my hand over the surface of the uterus, I found a subperitoneal tumor, and, in the attempt to break down the tumors on the inside, violent uterine contraction came on, and I felt the canal encroached upon by a mass which I endeavored to enucleate with my thumb-nail. The capsule split, and this mass escaped so suddenly from its bed that I feared I had ruptured the uterus.

On placing my hand now over the abdomen I found that the subperitoneal tumor had disappeared. The uterus now contracted uniformly, whereas before it had been doing so irregularly, and all hæmorrhage soon ceased after the removal of the remaining portions of the growths. The case ultimately recovered, though slowly, from the great loss of blood which took place.

Another case, which demonstrates this point more clearly, took place some years ago in this hospital. A small tumor partially pedunculated was discovered near the fundus, and on the outside of the uterus another tumor was detected, which was thought to have no connection with the one within. Inasmuch as the small intra-uterine mass could not be easily seized, it was slit open and allowed to disintegrate.

The patient did well for a week or ten days, but at the end of that time, while being syringed by the nurse, complained of a sharp pain over the lower part of the abdomen. The nurse noticed that the injection did not return into the bed-pan, and, dreading some accident, sent for me. A few days after, the patient died from peritonitis. At the autopsy, it was found that the subperitoneal tumor was displaced and rested behind the uterus. Where the tumor was attached there was found an orifice about an inch in diameter, communicating with the uterine canal. This orifice corresponded also with the seat of the intra-uterine tumor, which had completely disintegrated.

The obvious explanation of the case is, as I take it, that when the disintegration of the tumor within the uterus had taken place, the periphery of the outer tumor became involved and loosened from its attachment, and the injection easily displaced it, aided in all probability by its own weight. Now in regard to treatment. When we can make traction it matters not as to the thinness of the outer wall if there is only sufficient uterine tissue left to contract by exciting it. It is plain, however, in a case like this (Fig. 3), where the wall is very thin, that we can accomplish nothing; but, if there is a sufficient amount of the wall left, the space will be closed up as soon as the mass is withdrawn.

This procedure has the great advantage of being safer than any other, and is applicable to every case where a prudent operator would feel justified in attempting enucleation by any method. During an experience of eight years, I have lost but one patient, and that was, as I have stated, where I cut into the tumor and allowed it to disintegrate.

When a tumor is at or near the fundus, ergot acts beneficially in causing uterine contraction to pedunculate the tumor. By cutting the cervix the force of gravitation can be brought to produce a similar effect. But there are many cases where gravity cannot act, as in fibroids situated low down in the uterus, and where from the size or other causes uterine contraction cannot be secured. It has been my custom, in cases where the tumor was larger than a pigeon's-egg, to limit myself to controlling hæmorrhage, and aiding the uterus in forcing the tumor into the cavity, and when it had projected sufficiently to remove by traction. The case which is at present on the table belongs to this class, but it may be that, with an increasing experience, cases which I now hesitate to use traction on may be beneficially treated in this way. I am very much opposed to the practice of separating the tumor from its capsule before withdrawing it, from the fact that a larger surface is left to imperil the patient by septicæmia; but I think it is still more dangerous to cause disintegration of the mass, for when this is once started it is impossible to control it. In regard to the after-treatment there is but little to be said. After all *débris* has been removed, the cavity should be washed out with very hot water. This acts in more ways than one. It removes all detritus, it excites uterine contraction, and if it is prolonged it acts as an astringent upon the capillaries of the surface. After the injection, the application of Churchill's strong tincture of iodine not only increases the contraction but acts as an hæmostatic if there be a necessity. If oozing continues, it may be necessary to introduce a pledget of cotton saturated with glycerine, or, in case slight hæmorrhage continues, a tampon of cotton soaked in a strong solution of alum may be employed. The vagina should also be tamponed with a similar dressing. On the second day I remove the tampon, and if there is no further hæmorrhage dispense with all dressings and continue the frequent injections of hot water. The patient must not be allowed to leave her bed till the cavity has been filled up and discharge from the uterus ceased.

I consider the persulphate of iron an unsuitable remedy to apply to the cavity of the uterus for the arrest of hæmorrhage, for several reasons. It possesses in itself no styptic properties, but merely coagulates a mass of blood, which then acts mechanically. The blood thus coagulated is so changed in its properties that it undergoes decomposition in a few hours, and acts as a septic cause. Again, it acts as a local irritant, and is removed only by suppuration.[1]

Proceedings of Societies.

THE AMERICAN NEUROLOGICAL ASSOCIATION.

The first session of this Association was held in this city, June 3d, 4th, and 5th, Dr. J. S. Jewell, of Chicago, occupying the chair. The following members were present: Drs. J. S. Jewell, Walter Hay, and H. M. Bannister, of Chicago; Dr. R. Bartholow, of Cincinnati; Dr. J. K. Bauduy, of St. Louis; Dr. M. Burnett, of Knoxville; Dr. E. R. Hun, Jr., of Albany; Drs. E. H. Clarke, R. T. Edes, J. J. Putnam, S. G. Webber, and F. D. Lincoln, of Boston; Drs. S. Weir Mitchell, William Pepper, and H. C. Wood, Jr., of Philadelphia; Drs. J. Van Bibber and F. T. Miles, of Baltimore; Dr. H. D. Schmidt, of New Orleans; Dr. F. D. Lente, of Cold Spring, N. Y.; Dr. J. C. Shaw, of Brooklyn; Drs. W. A. Hammond, Meredith Clymer, E. C. Seguin, T. M. B. Cross, J. J. Mason, F. K. Kinnicutt, A. D. Rockwell, D. B. St. John Roosa, A. McLane Hamilton, E. G. Loring, J. C. Dalton, J. W. S. Arnold, N. B. Emerson, T. A. McBride, and J. S. Lombard, of New York.

On motion of Dr. McBride, the following resolution was adopted:

"It being the sense of this Association that its proceedings should be reserved for the profession and the medical press, be it

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[1] This subject is more fully treated of in a paper read by Dr. Emmet before the Medical Society of this State, at the last session, and to appear in the published Transactions.

"*Resolved*, That reporters from non-medical journals be excluded from the meetings of the Association; and that any information requested by the press be furnished by the Secretary, under the guidance of the officers of the Association."

The Committee on Organization, through Dr. Meredith Clymer, reported the subjoined Constitution and By-Laws, which were adopted:

CONSTITUTION.

I. This Association shall be named and known as "The American Neurological Association."

II. It is established to promote the study of neurological science in all its departments.

III. There shall be two sorts of members, namely, active members—not exceeding at any one time fifty in number, and who shall be at the time of their election residents of the United States—and foreign associate members, not exceeding at any one time twenty-five in number, and who shall be non-residents. Active and foreign associate members shall be elected by ballot on the recommendation of the Council, on one day's previous notice of such ballot, by a majority of all the members present:

Provided, That no one shall be eligible for active membership unless he has previously submitted a paper on some subject connected with neurological science, which paper shall be referred to the Council for examination and report. Active members only shall be entitled to vote at any meeting, or be eligible to any office.

IV. The officers of the Association shall be a President, two Vice-Presidents, a Corresponding Secretary, a Recording Secretary, who shall perform the duties of Treasurer, and a Curator. They shall be nominated by a Committee of Nomination of five members, appointed by the President on the first day of the annual session, and who shall report on the day following, immediately after which the election shall take place. The election shall be by ballot, and the person who shall have the greatest number of votes shall be declared elected to the office for which he may be a candidate.

In case of a vacancy occurring in any office between the dates of the annual election, it shall be filled by the Council until the next annual election.

The officers shall enter upon their duties immediately after the organization of the annual session next after their election, and shall hold office for one year:

Provided, That the officers of the first session shall be elected immediately after the organization of the Association, and shall hold their offices until the election at the second annual session.

V. The Council shall consist of the officers of the Association, shall manage the affairs of the Association, subject to the Constitution and By-Laws, and shall report to the Association at large at each annual session.

VI. The annual session of the Association shall be held on the first Monday in June in each year, and at such place as shall be designated by the Association at the previous annual session, and shall continue for three days, unless the time be extended by a vote of the Association.

VII. This Constitution may be amended by a two-thirds vote of all the members present, at any annual session, provided that notice of said proposed amendment in writing be given at the annual session immediately preceding.

BY-LAWS.

1. Each and every member of the Association shall pay annually to the Recording Secretary the sum of five dollars.

No member who shall be in arrears for one year shall be entitled to vote, or be eligible to any office in the Association.

2. The officers of the Association shall discharge the duties belonging to their respective offices. The President shall be *ex-officio* chairman of the Council.

3. The Council shall meet as often as the business of the Association may require. They shall keep a record of their proceedings, which shall be read at the annual session of the Association. They shall not have power to make the Association liable for any debts exceeding in total the sum of one hundred dollars in the course of any one year, unless specially authorized to do so by a recorded vote of the Association.

4. The order of business at each meeting of the Association shall be as follows:

5. The titles of all papers to be read at any annual session shall be forwarded to the Corresponding Secretary not later than one month before the first day of the session. All papers that may be read before the Association and accepted shall become the property of the Association, and their publication shall be under the control of the Council. All publications of the meetings of the Association shall be under the direction of the Council.

6. These By-Laws, or any one or more of them, may be amended, or repealed, or suspended, by a two-thirds vote of all the members present at any meeting during an annual session, provided notice in writing of any proposed amendment or repeal has been given at the meeting immediately preceding the one at which the motion is made and the vote taken.

The following report of the nominating committee was unanimously adopted:

For President—Dr. S. Weir Mitchell, of Philadelphia.

For Vice-Presidents—Dr. J. S. Jewell, of Chicago; Dr. E. H. Clarke, of Boston.

For Corresponding Secretary—Dr. J. J. Mason, of New York.

For Curator—Dr. J. W. S. Arnold, of New York.

For Recording Secretary and Treasurer—Dr. E. C. Seguin, of New York.

A communication was subsequently received from Dr. S. Weir Mitchell, containing his resignation of the presidency, and Dr. Jewell was elected President in his place, Dr. E. H. Clarke being made first Vice-President, and Dr. F. D. Miles second Vice-President.

A paper on the study of myelitis, by Dr. Webber, of Boston, was read and discussed.

Dr. MILES reported a case of spinal paralysis, with partial recovery.

Dr. HAMMOND presented a case of athetosis.

Dr. VAN BIBBER read a paper on the treatment of paralyzed muscles by elastic relaxation.

Dr. PUTNAM reported an interesting case of injury of the brachial plexus.

Dr. VAN BIBBER reported also a case of coincident nerve-injury and cutaneous eruption, which called forth remarks on similar cases by several gentlemen.

Dr. ROCKWELL read a paper on electro-medicine with reference to its physiological and therapeutical relations to the nervous system.

Dr. PUTNAM read a paper on a case of circumscribed analgesia of the skin after typhoid fever.

Dr. HAMILTON exhibited a new and ingenious dynamometer, consisting essentially of a rubber ball, and a glass tube to show and register the degree of pressure exerted on the ball.

Dr. HUN presented a specimen of fracture of the odontoid process.

Dr. LENTE read a paper on neuralgia and other neuroses arising from cicatrices in the scalp.

Dr. HAMMOND presented a paper on pigmentary deposits on the brain as the result of malarial poisoning.

Dr. HAY offered a specimen of hemiplegia, with clot on the same side.

Dr. HAMMOND nominated for membership Drs. S. Oakley Vanderpoel, T. Edwards Clark, and Clinton Wagner, of New York.

Dr. MASON nominated Drs. J. P. Gray, of Utica, and D. H. Kitchen, of New York.

Dr. E. C. SEGUIN nominated Dr. G. M. Beard, of New York.

Dr. HAMMOND offered the following:

> *Resolved*, That, as the number of active members of this Association is limited to fifty, it is inexpedient to elect to membership superintendents of lunatic asylums, but that in this action the Association does not wish to depreciate the labors of these gentlemen, and is further influenced in this action by the fact that there is already an association composed exclusively of superintendents of such asylums.

After discussion, the matter was referred to the Council, with instructions to report at the next session of the Association.

Drs. Clymer, Hammond, and Hamilton, were appointed a Committee of Arrangements to act in conjunction with the Council for the session of next year. It was decided to hold the next session of the Association in this city, on the first Wednesday in June, 1876.

THE NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, May 26, 1875.

DR. FRANCIS DELAFIELD, President.

Tumor of the Stomach.—Dr. DELAFIELD presented a tumor of the stomach which was taken from a patient who had been an inmate of Bellevue Hospital for one day. On admission, the only symptom detected was obstinate vomiting, and this continued at intervals till next day, when she died.

Autopsy.—There were found evidences of chronic peritonitis, together with disease of the stomach. The wall of the stomach was thickened to the extent of half an inch, and on the posterior portion of it there was a tumor of about the size of a hen's-egg. No secondary tumors were found in the liver or any other part of the body. An examination of this tumor by the microscope showed it to be made up of connective tissue, with a very small number of cells, having some of the characteristics of cancer-cells. There was no ulceration of the tumor observable, and for this reason, as well as for its formation, Dr. Delafield was of the opinion that there were grave doubts about the propriety of classifying it as cancer, although it is usually so regarded.

Pyæmia.—Dr. JACOBI presented the uterus and appendages taken from a woman who died in Bellevue Hospital. The patient had two attacks of facial erysipelas, and, following the last, several abscesses appeared on the scalp. Some time afterward, successive abscesses appeared in the axillary region and other parts of the body. It was now obvious that the cause was pyæmia. Eventually pus was detected in the knee and elbow joints.

Autopsy.—The joints were found to contain pus, as had been diagnosticated. The right ovary contained a cyst, and two ounces of a discolored fluid. The left ovary contained fluid also, but it was less in amount, and of a yellowish color.

Pneumonia with Empyema.—Dr. Jacobi also presented the lungs, liver, and spleen, of another patient who died in Bellevue Hospital a few hours after admission. Pneumonia was found at the autopsy, together with empyema. There were also hæmorrhagic infarctions in the lungs, liver, and spleen.

Stated Meeting, June 9, 1875.

Dr. Francis Delafield, President.

Pediculated Tumor of Breast; Papilloma.—Dr. Finnel presented a pediculated tumor which he had recently removed from a young woman. It was about the size of a hen's-egg, and attached near the nipple by means of a pedicle, about the thickness of a lead-pencil and three inches in length. The growth had never given her any pain, and was removed because of the annoyance it caused by its presence. Its external appearance closely resembled a large wart.

Aneurism of Carotid Artery.—Dr. W. H. Draper presented a specimen of aneurism of the carotid artery, which was of considerable interest, from the fact that it gave rise to a diagnosis of aneurism of the arch of the aorta. The history of the case was as follows: The patient was a man thirty-six years of age and a hard worker. Ten months ago he noticed a lump in the neck, which pulsated. Six months ago the voice changed in character, and he complained of a sensation of pressure over the trachea. Recently the tumor increased considerably in size. He entered Roosevelt Hospital May 13th, and the physician on duty at that time examined him, and found a loud aneurismal bruit extending down to the nipple. The heart was dislocated to the left, the apex-beat being found five inches to the left of its normal position. The diagnosis at that time was made of aneurism of the arch of the aorta.

May 30*th.*—General œdema very much increased.

June 7th.—Dr. Draper saw him for the first time. The patient was very weak, and slightly cyanotic.

8th.—The cyanosis increased very decidedly.

9th.—Died.

Autopsy.—An aneurism was found near the bifurcation of the carotid artery, of about the size of a walnut. The sac was filled with fibrine to a degree sufficient to make it nearly impervious. The right pleura contained an effusion. The main affection, however, was valvular disease, with hypertrophy, of the heart, which was displaced downward and to the left, the apex being in the seventh intercostal space. The aorta was slightly dilated, but only sufficient to be appreciable.

Scirrhus of the Breast.—Dr. W. H. B. Post presented a tumor of the breast which he recently removed from an unmarried woman, aged forty. Fourteen months ago she received a blow in the region of the mamma, and two weeks later a tumor began to develop, but advanced very slightly till six months ago, when it rapidly increased in size. There was great pain in the breast, and the skin was firmly adherent to it. The glands of the axilla were enlarged. Dr. Post said that he removed it at the request of the patient, and against his own advice. Since the operation the patient had done well. The tumor had not been examined microscopically, but, from its character, there could be but little doubt that it was scirrhous. The skin was indurated, and firmly attached to the mass. The hæmorrhage at the operation was controlled by means of torsion forceps. Since the operation the patient had been placed under the influence of arsenic.

Necrosis of Lower Jaw.—Dr. A. C. Post presented specimens of bone which he had removed from the lower jaw of a child. Dr. Post said that in the lower jaw, where support was needed, an involucrum was formed, but in the upper one no involucrum appeared.

Pleurisy, with Hæmorrhage into the Sac.—Dr. Pooley, of Yonkers, presented a portion of pleura which had been removed from a hospital patient in that town. Dr. Pooley knew but little of the history of the case, but understood that the patient had a specific history. He had been addicted to the use of stimulants, and one year ago said that he suffered from general dropsy. At the autopsy, the pleura on the left side was thickened, but on the right side the cavity of the pleura was filled, to nearly half its capacity, with blood. The pleura itself was thickened and vascular. The heart was the seat of dilatation. An examination of the brain showed the evidences of recent meningitis. The kidneys gave evidence of chronic Bright's disease, both of them being irregular in form, and one of them very much contracted. Dr. Pooley wished to know what was the cause of hæmorrhage into the pleura.

Dr. Delafield said that in all probability the blood came from the vascular pleura, and that the disease of the heart was the exciting cause.

Epithelioma of Conjunctiva.—Dr. Knapp presented an eye removed from a woman aged thirty. Three months before the operation the eye was injured, and from that time the malignant disease of the conjunctiva began to develop. An examination of the growth showed it to be made up in great part of epithelial cells, with a small amount of stroma of connective tissue.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, May 24, 1875.

Dr. H. B. Sands, President.

On some Conditions under which Pneumonia proves Fatal.—Dr. Delafield read an important paper on the above subject, which, with the experience of last winter, is doubly interesting. He said that his remarks were based on one hundred and twenty-three cases which he had either observed during life, or had examined after death. He was aided also by the Bureau of Vital Statistics of the Board of Health of this city, in regard to the number of deaths occurring from pneumonia during the last two years. He had excluded all doubtful cases, such as all children under five years, and all cases where the disease had lasted more than one month. From March 1, 1873, till March 1, 1875, 2,410 cases of death from pneumonia were reported, and of these 1,134 took place between

March 1, 1873, and March 1, 1874, and 1,276 between March 1, 1874, and March 1, 1875. The months in which most deaths took place were December, January, February, March, April, and May. The smallest number of deaths were recorded during August. It will be seen that the cold months were those in which deaths occurred most commonly. It was found, also, that, although there was a correspondence between the average temperature and the number of cases, there was not a coincidence with the daily temperature. No relation whatever could be drawn between the mortality and barometric changes. In regard to the age at which the most deaths took place, the maximum ranged between forty and fifty years, and the minimum from seventy years and upward.

A very interesting fact noted was, that the largest number died on the seventh day; the next largest number died on the fourteenth day; the next largest on the twenty-first day; and the next largest on the twenty-eighth day. It would seem from this that the end of every week is critical, and particularly the end of the first week. Dr. Delafield also exhibited several charts which illustrated the subject by tracings of the cases personally observed. It was found that in thirty-one there was red hepatization; in twenty-six gray hepatization; in fifty-nine there was a mottling; in two there was gangrene of the lung; in two there was breaking down of the lung-tissue; and in one there was a cheesy degeneration.

It was found that hepatization of the lung took place in twenty-four hours after the chill; and it was found also that in two days gray hepatization may occur; and in four days this gray hepatization may become complete. In fifteen of the cases there were no complications, but in the remainder œdema of the lungs, emphysema, gangrene, chronic phthisis, pleurisy, basilar meningitis, pericarditis, valvular disease of the heart, and chronic Bright's disease, were observed.

In thirty of the cases there was delirium, and with the delirium there was much of the lung involved. In five cases death took place from convulsions, and in four of those there was disease of the kidneys. In twelve cases there was sudden death, and of these there were five from dyspnœa, and in three of these five the dyspnœa was sudden and paroxysmal.

The remaining seven were due to various causes, and two only were uncomplicated. In four there was Bright's disease.

In none of the cases was there heart-clot. Dr. Delafield said that in all his experience he had not seen a case of *ante-mortem* heart-clot in pneumonia. The assumption of heart-clot comes from the sudden death. There was, in cases of death from pneumonia, as in many other diseases, fibrine involved in the ventricle, but in every case this was the result of death and not the cause of it.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, May 20, 1875.

DR. S. S. PURPLE, President.

THE members of the Academy met for the first time in their new building, No. 12 West Thirty-first Street, on this evening. The deed and bond and mortgage of the house and lot were intrusted to Dr. White, in behalf of the trustees of the Academy, by Dr. Anderson, chairman of the Committee on Ways and Means. The new building serves its purpose very well, being a wide, high-stoop brown-stone, with very large parlors, capable of accommodating all the members of the Academy. The upper parlor of the house, which is intended for library and other purposes, is not yet finished. Several donations of pictures, etc., were received, and a vote of thanks of the Academy passed to each of the donors. After the meeting a collation was served to the members of the Academy by Dr. Hubbard.

Stated Meeting, June 3, 1875.

DR. S. S. PURPLE, President.

Rupture of the Perinæum.—Dr. NOEGGERATH read an extensive paper on this subject, giving the usual causes, and suggesting the treatment, both prophylactic and surgical. The prophylactic consisted, he said, in preventing a too rapid dilatation of the perinæum, and also of guarding against an unequal distention of it, either by an overlapping sagittal suture in the head of the fœtus, or by any other cause. He referred also to the success which attended the method of making lateral incisions in the vulva to relieve the distention of the perinæum. Dr. Noeggerath was strongly in favor of operating immediately in those cases in which rupture had taken place, unless there was marked depression from hæmorrhage or other cause.

Dr. Barker spoke highly of the merits of Dr. Noeggerath's paper, but said that his views did not entirely coincide with what was there expressed. Each case must be treated as the indications direct. Thus, some women have a straight sacrum, much resembling that of man, and the tendency of the forces was to carry the head directly down, and, of necessity, directly upon the perinæum; and to meet the impending danger the presenting part must be pressed up against the symphysis pubis. Again, the vulva was not in the same position in all patients, nor was it always of the same size. The perinæum itself may be without the normal elasticity, either from an excessive amount of fat, or from its being the site of disease. Dr. Barker was of the opinion that the forceps prevented rupture of the perinæum in many cases by rectifying a malposition, and the main danger in their use arose from making traction directly downward, and not following the direction of the curve of the sacrum. He was opposed to the immediate operation, for the reason that in a great number of cases the perinæum closes up without any interference.

Dr. Lusk said that in his experience the operation was not successful in more than half of the cases. He found also that, when patients had remained without any operation, good results were obtained.

Dr. Peaslee differed from Drs. Barker and Lusk in respect to the benefit derived from an immediate operation. He was in favor of operating in every instance, with the exception of cases of laceration of the fourchette, and thought that cases which were pronounced cured were not so in reality. He never had found any danger from the operation. In regard to the distress which had been suggested as a probable result of the operation, he thought that might be avoided by continuing the anæsthetic after the delivery of the patient. Dr. Peaslee declared himself strongly in favor of closing the perinæum, and considered that the welfare of the patient demanded it in cases where the rupture had involved the sphincter of the anus.

Bibliographical and Literary Notes.

Art. I.—*St. George's Hospital Reports.* Edited by John W. Ogle, M. D., F. R. C. P., and Timothy Holmes, F. R. C. S. Vol. vii., 1872–'74, 8vo., pp. xii.–396. London: J. & A. Churchill, 1875.

Some time ago we had the pleasure of noticing in these pages the sixth volume of "St. George's Hospital Reports," and it is with no less pleasure that we accept the task of looking over the seventh volume. It contains no less than thirty-four articles, including the "Reports" of the several departments.

The first article is by Edward T. Wilson, M. D., on "Questions connected with Vaccination." The second is "On the Effects produced on the Capillary Circulation by the Injection of Putrid Fluids into the Lymphatic System of Amphibia," by John Carafy, M. D. Numerous experiments lead the author to the following conclusions:

"1. The injection of putrid animal fluids in relatively small quantities into the lymphatic system of amphibia is followed by inflammation, which is not to be distinguished from inflammation produced in other ways, except by the fact that it supervenes more rapidly.

"2. Large doses act as a direct poison to the nervous system, causing paralysis of the heart, with consequent general circulatory stasis.

"3. The accumulation of colorless corpuscles and the formation of thrombi cannot be attributed to any local action exercised by bacteria on the walls of the blood-vessels, or on the protoplasm of the colorless corpuscles, but must be ascribed (*a*) to inflammation, (*b*) to paralysis of the circulatory centre, (*c*) to alteration of the normal condition of the walls of the vessels produced by dragging, or (*d*) to a varying combination of these causes."

Article III. includes "Three Cases of Cerebral Disease; with a Table of Cases of Tubercular Meningitis," by J. C. J. Fenwick, M. D. Article IV., "Notes of Lectures on Midwifery and Diseases of Children," by R. G. Lee, M. D., gives an exceedingly condensed account of the management of labor under its various circumstances. The author advises the application of a poultice, or warm fomentations, to the perinæum during labor, and firm support to that part as the head escapes. We have had no experience with the poultice, but consider it more applicable to an abscess than to the perinæum of a woman in labor. The "firm support" to the perinæum should, in our opinion, be limited to pulling the parts forward. Too much pressure impedes the circulation and renders the parts more liable to rupture.

In Article V., Clement Walter, Esq., furnishes "Notes on some Cases of Death after Confinement," including four interesting cases of what we should call puerperal fever. The author thinks that in the epidemic under consideration the cases were "peritonitis connected with erysipelas, or of an erysipelatous character . . . . because, with the exception of one case, there was no visible inflammation of the uterus, or of the uterine appendages—for nothing noticeable was found in the veins—or of the omentum and intestines, for no signs of inflammation were found there." He does not agree with those who believe it to be a "fever of a peculiar nature." We are more inclined to agree with Barker in considering puerperal fever an essential disease as distinguished from peritonitis, septicæmia, etc.

"Notes on Midwifery," by R. P. Wintle, Esq., is the subject of the next paper.

Edgar G. Barnes, M. D., "On the Concurrence of Zymotic Diseases," seems to think there is a more or less close relation existing between the diseases of this class.

C. Handfield Jones, M. D., F. R. S., etc., contributes twelve interesting "Cases of Psoriasis," with the method of treatment which succeeded in each.

In the ninth article, entitled "Exophthalmic Goitre," Dr.

W. B. Cheadle reports seven interesting cases. He thinks it is a purely nervous disease, more probably originating in the sympathetic system. In only one case did treatment seem to prove beneficial, and in this one it consisted in the administration of the tincture of iodine.

R. Brudenell Carter, Esq., contributes an elaborate article on "The Principles of Ophthalmic Therapeutics." This is an extract from a forthcoming volume of "Essays on the Diseases of the Eye." It is quite practical in character.

H. Fly Smith, M. B., contributes "A Case of Puerperal Blood-Poisoning."

Article XII., "Illustrations of some of the more Unusual Forms of Disease of the Abdomen, with Comments on Fistulous Openings through the Walls of this Cavity," is the substance of two clinical lectures, by John W. Ogle, M. D. It includes the report of nine instructive cases, but is too elaborate for especial notice here.

Samuel Lee, Esq., contributes the "History of a Case of Unreduced Dislocation of the Hip-Joint."

T. Holmes, Esq., contributes a very important paper "On Pulsating Tumors which are not Aneurisms, and on Aneurisms which are not Pulsating Tumors: being a Contribution to the Diagnosis of Aneurism." The author analyzes the cases reported by Dr. Stephen Smith, in his well-known article "On the Difficulties attending the Diagnosis of Aneurism from Abscess," published in the *American Journal of the Medical Sciences*, in April, 1873, and takes occasion to criticise the methods of examination in many of the cases, together with some of Dr. Smith's conclusions. In the examination he lays particular stress upon the importance of stethoscopic examination, and thinks that, if the history and all points connected with the differentiation are properly attended to, errors will seldom occur. The greatest care, he urges, should be observed before opening a supposed abscess in a location at all suspicious.

Dr. William Marcet writes the fifteenth paper, "On Consumption a Form of Septicæmia."

"Flat Foot" is the title of the next article, by Charles Roberts, Esq.

John W. Ogle, M. D., contributes a part of a clinical lecture, entitled "Two Cases of Carcinoma within the Abdomen; with Observations on Pain as a Result of Pressure on Nerves."

Article XVIII., "Notes on Iodate of Calcium, Camphorated Phenol, and Salicylic Acid, as Disinfectants and Antiseptics," by S. W. Moore, Esq. Five experiments with the first-named substance prove conclusively that it is opposed to the development of chemical decomposition, but on the living organism its application is found to be too painful for clinical use. The camphorated phenol was found to be without the irritating and caustic effect of carbolic acid, but as a disinfectant is less potent. Salicylic acid was found to arrest decomposition in milk, urine, eggs, and the fluid of a hydatid cyst; but it was employed on the living organism in too few cases to test its clinical virtues.

Allan D. Mackey, M. B., gives observations "On Certain Drugs—Their Value," in a tolerably lengthy paper. His experience is worthy of perusal.

"A Simple Mode of tabulating Symptoms in Clinical Records; with a Schedule of Cases," is given by Dr. Ogle.

The last-named article closes the special papers, the remainder of the book, of 140 pages, being given to the report of cases in the several departments, statistics, etc. The statistics, as may be expected from the records of St. George's Hospital, afford much interesting material for study and comparison.

Art. II.—*Second Annual Report of the Secretary of the State Board of Health of the State of Michigan, for the Fiscal Year ending September* 30, 1874. 8vo, pp. xxxiv.–221. Lansing: W. S. George & Co., 1875.

The summary of the work of the Board during the year occupies twenty-seven pages. From it we learn that the Board continues active, as some good recommendations for the use of the authorities are published.

Of the special articles, the first is the annual address of the President of the Board, Dr. H. O. Hitchcock, entitled "Entailments of Alcohol." He discusses the effects of alcohol as a beverage, rather than as a medicinal agent, and gives a very full and complete account of its evils. He claims that it is not food, but a poison ; and says, " God's great remedy for the world's great curse is total and universal abstinence from making, selling, and drinking, intoxicating liquors." This savors too much of the temperance orator.

The second paper is a " Report on a Special Investigation concerning Impurities and Adulterations in Table Syrups," by R. C. Kedzie, M. D. The author gives the process of converting starch into grape-sugar by means of the employment of sulphuric acid and chalk, and shows how readily impurities of lime, sulphuric acid, iron, lead, and " dirt," are formed in the manufactured compound. The lime is said to destroy the sweetening property of sugar. Of seventeen samples of syrup examined, two were composed of cane-sugar and were comparatively pure, while fifteen of the samples were of the starch-sugar, containing a variable amount of objectionable impurities. The article is very important, and we are only sorry that we cannot give it to our readers entire.

" Draining for Health," by Henry F. Lyster, M. D., is the subject of the next article, which is excellent.

" Poisonous Wall-Paper" is the title of another excellent paper, by Dr. Kedzie. He shows that arsenical papers are not limited to those of green color, but that all papers of delicate and " toned " colors may be regarded as suspicious.

A very good paper is entitled " The Relation of Schools to Public Health," by J. S. Goodman, M. D.

Dr. Kedzie contributes another article, entitled " Resuscitation of the Drowned," and one bearing the title " Sanitary Inspection of Certain State Institutions."

A report on " Cerebro-spinal Meningitis," with five diagrams, as it occurred in Monroe and Lenawee Counties, Mich., is the subject of a very elaborate article, by Henry B. Baker, M. D. It closes the volume.

We regard the book, as may be judged from our brief notice, as a valuable contribution to the literature of hygiene.

Art. III.—*Annual Report of the Supervising Surgeon of the Marine-Hospital Service of the United States, for the Fiscal Year* 1874. By John M. Woodworth, M. D. 8vo, pp. viii.–256. Washington: Government Printing-Office, 1874.

The surgeons of the marine-hospital service present an interesting pamphlet, showing an improvement over the last. We wish that it could have been better bound, and that it might be placed in the hands of all having authority in building and managing ships and vessels of every description. The medical officers continue active in their efforts for hygienic reform. The whole number treated in hospital for the year was 12,605, the mortality being 3.59 per cent.

The special articles in the "Appendix" are entitled respectively "The Hygiene of the Forecastle," by Heber Smith, M. D.; "American Commerce and the Service," by Frank W. Reilly, M. D.; "Unseaworthy Sailors," by C. Henry King, M. D.; "Sailors and their Diseases, in Chelsea Hospital," by A. B. Bancroft, M. D.; "The Service on Cape Cod," by Peter Pines, M. D.; "The Freedmen and the Service on the Ohio," by P. H. Bailhache, M. D.; "Diseases of River Men, their Causes and Prevention," by Horace Wordner, M. D.; "Preventable Disease on the Great Lakes," by James M. Allen, M. D.; "Syphilis, the Scourge of the Sailor, and the Public Health," by Fred. R. Sturgis, M. D.; "Yellow Fever at Pensacola in 1874," by Joseph S. Heron, M. D.; and a very elaborate report of "The Yellow-Fever Epidemic of 1873," by Frank W. Reilly, M. D.

Books and Pamphlets Received.—A Report on the Hygiene of the United States Army, with Descriptions of Military Posts. Washington: Government Printing-Office, 1875.

Rest in the Treatment of Nervous Diseases. By S. Weir Mitchell, M. D. No. IV. of American Clinical Lectures. Edited by E. C. Séguin, M. D. New York: G. P. Putnam's Sons, 1875.

Seventy-third Annual Catalogue of Bowdoin College, for the Academical Year 1874–'75.

Prospectus of the Eighth Annual Session of the Medical Department of Howard University, Washington, D. C.

Analysis of One Thousand Cases of Skin-Diseases, with Cases, and Remarks on Treatment. By L. Duncan Bulkley, A. M., M. D. Reprinted from the *American Practitioner* for May.

An Address on the Climatology of Florida. Delivered before the Medical Association of the State of Florida at their Annual Meeting, February 17th and 18th. By A. S. Baldwin, M. D. Charleston: Walker, Evans & Cogswell, 1875.

Practical Hints on the Selection and Use of the Microscope. Intended for Beginners. By John Phin, editor of the *Technologist.* Price 75 cents. New York: Industrial Publication Company, 176 Broadway.

Significance of Disturbed Action and Functional Murmurs of the Heart. By J. R. Leaming, M. D., Physician to St. Luke's Hospital. Reprinted from the Transactions of the Academy.

Till Rehoflexionernas Ætiologi och Therapi. Af Dr. Fredrik Elkund. Stockholm.

On Spasmodic Urethral Stricture. By F. N. Otis, M. D., etc. New York: G. P. Putnam's Sons.

Fourteenth Annual Report of the Cincinnati Hospital, to the Mayor of Cincinnati, for the Year ending December, 1874.

Twelfth Annual Report of the New York Society for the Relief of the Ruptured and Crippled, May, 1875.

Annual Circular of the Maryland College of Pharmacy, Session of 1874–'75.

Extract from a Report on the History of the Surgery of Tennessee. By W. T. Briggs, M. D. Reprinted from the *Nashville Journal of Medicine and Surgery.*

A Clinical Contribution to the Treatment of Tubal Pregnancy. By T. Gaillard Thomas, M. D., etc. Reprinted from the *New York Medical Journal.*

Self-Injection of the Bladder in the Treatment of the Consequences of Obstructive Enlargement of the Prostate. By W. H. Van Buren, A. M., M. D., and E. L. Keyes, A. M., M. D. New York: D. Appleton & Co.

Annual Announcement of Lectures in the University of Wooster, Cleveland, Ohio, with a Catalogue of the Officers and Graduates.

Clinical Studies with the Non-nauseating Use of Ipecacuanha, chiefly in Intermittents. Reprinted from the *Atlanta Medical and Surgical Journal.*

Relation of Ophthalmology to Practical Medicine. An Introductory to the Summer Course of Lectures of the Jefferson Medical College. By William Thomson, M. D.

Annual Report of the Chief of Staff of Charity, Fever, and Small-pox Hospitals, Blackwell's Island, N. Y. For the Year ending December 31, 1874. Pp. 63.

The Management of Eczema. By L. Duncan Bulkley, A. M., M. D. New York: G. P. Putnam's Sons, 1875. Pp. 22.

Annual Address before the Society of the Alumni of the Medical Department of the University of Pennsylvania. By Cornelius G. Comegys, M. D., Lecturer on Clinical Medicine in the Cincinnati Hospital, Ohio, etc., etc., with the Proceedings of the Alumni Meeting of 1875.

Cyclopædia of the Practice of Medicine. Edited by Dr. H. von Ziemssen. Vol. III. Chronic Infectious Diseases. Prof. Christian Bäumler, of Erlangen; Prof. Arnold Heller, of Kiel; and Prof. Otto Bollinger, of Munich. Albert H. Buch, editor of American edition. New York: William Wood & Co., 1875.

Reports on the Progress of Medicine.

SURGERY.

Prepared by Samuel B. Ward, M. D.

The London *Medical Times and Gazette*, of February 27th, contains an interesting clinical lecture by Jonathan Hutchinson, the cases calling forth his remarks being those of fracture of the spine.

The first case was that of a German, aged fifty, who had been knocked down by a bale of wool, which fell on the back of his neck. Though but slightly stunned, he immediately lost the use of his lower extremities. He experienced some pain in the back of the neck and arms. Sensation was perfect in all portions of the integument of the upper extremities, except those to which the ulnar nerve was distributed on each side. In these regions sensation was imperfect, but not lost. The skin of the thorax, abdomen, and lower extremities, was defective in, though not devoid of, sensation.

The patient could move his lower limbs slightly in bed. No deformity could be observed about the cervical vertebræ, though some pain was present on pressure over the lower ones. Whether contusion of the cord existed was a difficult as well as an important question.

Two symptoms of some moment were then inquired into, regarding the condition of the iris and the state of the respiration. The iris was found to respond fully to alternate light and darkness.

The respiration, however, was entirely abdominal.

The symptoms remained about the same for several days. He had retention of urine and fæces. He gradually failed, and eighteen days after the accident he died.

Inasmuch as the iris, which was normal in the performance of its function, is supplied by a branch from the cervical sympathetic, and this arises from the lower part of the cervical cord, and because, from the brachial plexus, the ulnar nerve alone was affected, the diagnosis of displacement of the last cervical vertebra was made.

In Mr. Hutchinson's remarks on the case, he states that the noticeable continued defect in the sensations and motion led him to the conclusion that contusion of the cord was present, for he has "but a feeble faith" in the doctrine of concussion as sufficient to explain this symptom.

He considers diaphragmatic breathing, when well marked, to be a most conclusive symptom pointing to the location of the lesion. In his clinical experience he has never before seen the ulnar nerves so distinctly involved when the rest of the arms had escaped; and from the number of cases which he has observed in the dead-house he has very rarely seen any degree of permanent compression of the cord, as the displacements of the vertebræ are usually so much replaced as to leave ample room in the vertebral canal; and he rarely finds any laceration of the membranes causing a hæmorrhage within them.

The lesion with which he has commonly met is a clot in the centre of the cord, with soft and pulpy nerve-matter surrounding it. In the latter remarks he refers to cases not so much the result of direct as of indirect violence.

In his treatment, Mr. Hutchinson is not meddlesome, and is somewhat peculiar as relating to one symptom. Only in exceptional cases, where paralysis of the sphincters is incomplete, does he draw away the urine, for he says that the contractility of the bladder is sufficient to expel the urine before any dangerous or annoying distention occurs.

The autopsy in this case conformed to past experience. The lower part of the body of the seventh cervical vertebra was fractured, and the upper fragment was thrown slightly forward. In the substance of the cord were several small hæmorrhages, opposite the point of the fracture, while externally the cord and theca showed no sign of injury.

Mr. Hutchinson then introduced another case of injury to a woman, resulting from a fall down-stairs, on the top of her head. She was rendered insensible, but soon returned to consciousness, when it was found that sensation and motion were completely lost in the lower extremities, and in the trunk below such parts as were supplied by the cervical plexus. In the upper extremities these symptoms were complete in some parts, but incomplete in others. Breathing was diaphragmatic, and the iris did not respond as perfectly as in the other case. On the following morning the urine and fæces were retained.

It was observed that the tibial arteries pulsated with much force, and that the surface temperature of the paralyzed portions was elevated. Sixty hours after the accident the patient died.

The autopsy showed no rupture of the spinal ligaments, or displacement of the bodies of the vertebræ. A fracture of the articular processes between the fifth and sixth cervical vertebræ existed.

Though a slight quantity of blood was found in the arachnoid cavity, it was not sufficient to compress the cord.

Opposite the fracture the cord felt soft, and in its centre a clot, about an inch and a half in length, was found.

Surgical Statistics.—The *Medical Times and Gazette*, of March 13, 1875, contains a statistical report of the major operations performed by Prof. Spence in the Edinburgh Royal Infirmary, prepared by George Kirkwood, late resident surgeon. The total number of operations is not very great, nor can the results, considered merely numerically, be said to be extraordinarily brilliant; but the way in which the report is made out, and the remarks of both the gentlemen named, are worthy of attention. Under the head of amputations, for instance, the paper shows whether the operation was for injury or disease; and, if the former, whether primary or secondary; while a short foot-note gives a concise history and statement of the cause of death in almost every fatal case.

Dr. Kirkwood remarks that, when circumstances will permit, every patient is carefully examined as to the condition of all his viscera, and his general health improved in every possible way, before an operation is undertaken. "Before and after all operations the preparations of iron are used, either alone or along with dilute phosphoric acid, and very generally such remedies as the chlorate of potash and the hyposulphite of soda are given, so as to improve the state of the blood, and render the patients more able to resist septicæmic conditions." The local treatment of the wound consists in resorting to such simple measures as will insure the free escape of all discharges, syringing with disinfecting and stimulating fluids—as carbolic or boracic acid, chlorinated soda, and sulphate of zinc; and dressing with waxed paper, lint, and oakum.

Prof. Spence calls attention again to the fact that *general* statistics, merely showing that, after any given operation, a certain percentage of patients die, besides being subject to many sources of fallacy, teach us very little. One source of fallacy is shown in these very tables—*one patient* dying after amputation of the leg and subsequent amputation of the thigh, furnishing *two deaths.* The great use of statistics is to enable us to determine what chance a given patient has of surviving a given operation; and, in order to afford us the desired information, statistics must go more or less into detail, not only as to the injury or disease necessitating the operation, but as to the constitution of the patient, and his condition at the time of its performance. With reference to the local treatment of wounds, to which much attention is given at the present day, the professor remarks that, while care and cleanliness in dressings are most important, "we are apt to give more than its due weight to some special method of dressing."

He feels forced to this conclusion by turning to his own statistics during the years 1860–'62, when he "treated his amputation wounds by merely washing the surfaces thoroughly with tepid water, and occasionally sponging them with tincture of iodine, either alone or diluted with water, and when the only dressing applied was a single layer of lint or muslin placed lightly over the stump." During those three years he performed sixty-three amputations for disease, with but three deaths. If we now turn to the tables which form the subject of these remarks, embracing the two years from October, 1872, to October, 1874. and select precisely the same operations for disease, we find a total of thirty amputations, with ten deaths. From this it is evident that results depend much more upon other circumstances than upon the way in which wounds may be dressed, or that the method recently adopted was a very bad one.

Treatment of Fracture of the Patella.—The *Practitioner* (London) for March contains three articles on this subject, one of them, by Mr. Arthur F. McGill, opening with the remark: "It may be taken as an axiom in medical and surgical practice that the treatment of those diseases and injuries, for which many remedies have been advised, is, as a rule, unsatisfactory." He then describes the "Expectant Treatment" adopted by Mr. Pridgin Teale, which does away with special apparatus, and is recommended as simple and efficient. The limb is placed in a straight or slightly bent position, between sand-bags, and an evaporating lotion applied during the acute inflammation following the injury. The position is to be maintained for about six weeks, at the end of which time a starched bandage may be applied. Mr. Teale has tried this plan in two cases of which measurements are given, besides many others. In the first, the interval between the fragments, immediately after the injury, was a half-inch, while at the end of two months no interval was perceptible. In the second case, the interval was at first at least an inch and a quarter, and at the end of six weeks was reduced to a quarter of an inch. In the rest of the cases the plan is said to have been as successful as any other, while the comfort of the patient has been much greater.

Three reasons can be assigned for the gradual approximation of the broken fragments: 1. At the time of the injury the quadriceps extensor is thrown into a state of tonic contraction; after a few days this contraction relaxes, and the muscle gradually regains its normal length, thus removing all traction from the broken bones. 2. The effusion which always occurs at the time of the accident is gradually absorbed, and by its removal allows the fragments to fall together. 3. The fibrous band which is formed between the opposing surfaces has, like all other cicatricial tissue, a tendency to contract, and thus to complete the approximation.

Mr. Callender, of St. Bartholomew's, applies a broad piece of adhesive plaster to the skin of the anterior surface of the thigh, the lower margin of the plaster being concave to fit the upper fragment of the patella, and protected by lint to prevent excoriation. Another piece of plaster, similarly arranged, is applied to the anterior surface of the leg, coming up to the lower border of the lower fragment. The limb is then confined in a Neville's splint, to which two bars have been attached, projecting beyond the foot-piece, with a pulley at the distal end of each. A cord is then attached to one corner of the upper end of the lower plaster, passes through a loop in the lower end of the upper plaster, down parallel with the leg, and over the pulley at the end of the bar. The same is done on the other side of the limb, the cords are united, and a weight attached to them. This arrangement has a tendency to draw the lower fragment up, and the upper fragment down, in an equal degree, without tilting them in any direction. The results are said to be perfectly satisfactory.

Mr. James Spence, of Edinburgh, uses Malgaigne's hooks, but instead of passing them through the skin into the bone, applies firmly to the skin, just above and below the fragments, several thicknesses of good adhesive plaster, into which the hooks are fastened. The limb is to be placed on an inclined plane, or, better yet, slung in a corresponding position, and the screw of Malgaigne's apparatus is to be gradually tightened after the plasters have adhered firmly.

Aneurism of the External Carotid cured by Pressure.—The *Medical Times and Gazette*, of February 27th, quotes the case from the *Correio Medico*, as the first occurring in Lisbon, and the fifth on record. In the same case digital compression had just previously been employed in Brazil, for a period of thirty-nine days, without success. The successful attempt extended over a space of thirty-nine or forty days, during which pressure was maintained for 283 hours, or less than one-third of the time.

REPORT ON LARYNGOLOGY.

No. II.

By GEORGE M. LEFFERTS, M. D.,

INSTRUCTOR IN LARYNGOSCOPY, COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK.

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1. Browne.—Considerations in the Treatment of New Formations of a Benign Character in the Larynx. *British Medical Journal*, May 8, 1875.

Browne, in an interesting paper under the above title, presents various propositions with a view of inducing members of the profession to with-hold their hands from efforts at mechanical removal, of what is often, in every sense, a most benign formation in the larynx, and agrees with Johnson in remarking upon the possibility that the larynx may get too much of local treatment.

The propositions which he submits for consideration are as follows:

(1.) Attempts at removal of growths from within the larynx are not in themselves so innocuous as is generally believed, but, on the contrary, direct injury of healthy parts, leading to fatal results, is by no means of unfrequent occurrence.

(2.) The functional symptoms occasioned by benign growths in the larynx are, in a large proportion of cases, not sufficiently grave to warrant instrumental interference.

(3.) Many of these new formations will disappear or be reduced by appropriate local and constitutional medical treatment, especially when of recent occurrence.

(4.) Recurrence of laryngeal growths after removal, *per vias naturales*, is much more frequent than is generally supposed.

(5.) While primary malignant or cancerous growths are of extremely rare occurrence within the larynx itself, benign growths frequently assume a malignant or even cancerous character by the irritation produced by attempts at removal.

(6.) The instruments now most generally in use are far more dangerous than those formerly employed. And lastly, the cardinal law, that "an extra-laryngeal method ought never to be adopted unless there be danger to life from suffocation or dysphagia," should be applied with equal force to intra-laryngeal operations.

2. Bottini.—Extirpation of the Larynx, case of. *Gazetta delle Cliniche. London Medical Record*, April 28, 1875.

Martelli communicates the history of a case of extirpation of the larynx, performed by Prof. Bottini, in which the operation was undertaken on account of a morbid growth within and filling up the laryngeal cavity (its nature is not stated), which had resisted all treatment with caustics; and attempts at dilatation of the cavity with laminaria tents, and for which laryngotomy had been performed.

An incision nearly two inches in length was made from the hyoid bone down to the artificial opening in the larynx; then, by means of horizontal incisions to the right and left, two flaps were formed, which were dissected up and turned outward. The anterior part of the larynx was then carefully laid bare, the edges of the wound being held apart by hooks, and the connections between the larynx and œsophagus was severed by means of the fingers and blunt instruments. It was found impossible to remove the larynx by at once cutting it free from the trachea below and the hyoid bone above, and the process had to be suspended several times to allow of the patient's coughing up the blood which had passed into the trachea. Several arteries, especially the two superior laryngeal, were tied, and the galvano-cautery was applied to others. The subsequent history of the case was favorable, the wounds healed for the most part by first intention, and at the last report the patient's condition was promising.

3. Schmidt.—Extirpation of the Larynx, Case of. *Arch. für klin. Chir.*, vol. xviii., 1 Heft, 1875.

Dr. Schmidt records the history of an unsuccessful extirpation of the larynx. The patient came under the doctor's care in January, 1872, with thickening and ulceration of the right vocal cord, the appearance of which led to the diagnosis of carcinoma. Under treatment, consisting in cauterizations with caustic potash and chromic acid, there was no improvement. The disease spread rapidly, involving the whole laryngeal cavity, and necessitated tracheotomy in June, 1874. In August, extirpation was decided upon, and the operation carried out according to the method employed in Billroth's case (the full details are given in the article). The patient lived for five days after the operation, dying on August 17th from collapse.

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5. St. Germain.—On Laryngotomy in Children. *Gaz. des Hôp.*, April 6, 8, 20, 29, 1875.
6. Isambert.—An Attempt to classify the Diseases of the Larynx and Pharynx. *Annales de l'Oreille et du Larynx*, March 1, 1875.
7. De Mussy.—On Cauterization of the Larynx. "Clinical Lectures," tome i. Delahaye, Paris, 1874.
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15. Bergeret.—A Contribution to the History of Non-croupous Affections of the Throat, necessitating Tracheotomy. *Lyon Méd.*, No. 17, 1875.
16. Gruber.—Cystis, retentionis præ-epiglottica. *Virchow's Archives*, April 9, p. 96, 1875.
17. Yandell.—Three Cases of Tracheotomy for Foreign Bodies. *American Practitioner*, May, 1875.
18. Coyne.—Observations on the Severer Forms of Erythema of the Larynx, occurring during the Invasion of Measles. *Gaz. Méd. de Paris*, Nos. 35–37, 1874.
19. Burow.—Laryngological Contributions, Cases, and Drawings. *Arch. für klin. Chir.*, Band 18, 2 Heft, 1875.
20. Robson.—Laryngeal Polypus expelled by coughing. *British Medical Journal*, May 29, 1875.

Robson gives the history of the following interesting case. A patient, aged fifty-one, had thirteen years previously become gradually hoarse, without apparent cause. This condition continued for twelve years. She then (one year ago) caught cold, and the voice became reduced to a whisper, and the breathing difficult. Local applications were made to the larynx, and soon after the second she felt something suddenly loosen in the throat and flap about during respiration. From this time a loud rattling occurred in the throat whenever she drew a long breath or attempted to lie down, which she could only do on the right side, as, when she lay on the left, something seemed to fall over the passage and entirely stop her breathing. After these symptoms had continued for some little time, she had a laryngeal hæmorrhage, lasting some ten hours, at the end of which time she coughed and brought up a substance, with great relief. Three days later she spoke clearly, breathed freely, and could sleep well in any position. The tumor coughed up was oblong, six lines in length, three in breadth, and two in thickness, and had a pedicle attached to one extremity. It presented under the microscope the appearance of myeloid sarcoma.

21. MACKENZIE.—On the Hypodermic Treatment of Indolent Enlargement of the Cervical Glands. *Medical Times and Gazette*, May 29, 1875.

Mackenzie says that indolent glandular enlargements should be either cured radically, or left altogether untreated. Half measures only give rise to disappointment and cause disfigurement. An enlarged gland may be a slight blemish, but when it has been blistered, poulticed, painted with iodine, incised, or subjected to any of the various modes of treatment recommended in such cases, it often becomes a deformity.

He employs remedies hypodermically in these cases, and the cure is effected either by resolution or by destruction. In the former case absorption takes place; in the latter, the injection is followed sooner or later by suppuration. It is desirable if possible to cure by resolution. He has found acetic acid the most useful remedy for this purpose, using the ordinary dilute acetic acid of the British Pharmacopœia, and generally injecting from five to twenty drops, according to the size of the gland to be treated, seven or eight drops being an average dose. The injection should not be made more than once a week, and the fluid should be injected well into the middle of the gland. Suppuration has generally resulted from the solution having been injected either too frequently or too superficially. If suppuration takes place, the fluid should be drawn off with an hypodermic syringe or aspirator. The average duration of treatment by resolution is three minutes.

For treatment by destruction and suppuration, a solution of nitrate of silver answers best (ʒj–℥j), three to five drops being used at a time. Considerable interstitial destruction is generally produced after three or four injections, sometimes after a single injection. When pus forms it should be drawn off as already directed. Treatment by destruction, if successful, is more rapid than that by resolution, but induration of the outer portion of the gland sometimes follows the treatment, and interferes with its success.

22. LABUS.—Laryngoscopic Operations. *Commentarii di Med. e Chir.*, Milan, December, 1874.
23. COHEN.—Apsithuria. *Phila. Med. and Sur. Rep.*, May 1, 1875.

Cohen describes in this article a condition which he terms *apsithuria*, or inability to whisper, and says that the affection is a rare one. Many patients with aphonia (inability to vocalize) are supposed to be unable to whisper also, but upon close examination it will be found in the majority of instances that the inability to whisper is only apparent. He details the histories of four cases in which the above symptom was marked, and in all of which a bilateral phonal paresis of the vocal cords existed. The treatment consisted in a tonic and aperient course, together with the application of electricity. The writer further states that he has been unable to obtain any satisfactory insight into the pathology of loss of whispering power with intact preservation of voluntary expiration and voluntary consentaneous movement of the muscles employed in speech.

24. GROLLEMUND.—Notes on a Case of Aphonia, lasting Six Months; Cure by Electricity. *Rev. Méd. de l'Este*, May 1, 1875.
25. BUSEY.—Epithelioma of the Larynx; Case. *Am. Jour. Med. Sci.*, April, 1875.
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53. Schmidt.—Extraction of a Foreign Body from the Trachea from above, through the Larynx, together with Cases of Foreign Bodies in the Trachea and Larynx. *Arch. für klin. Chir.*, vol. xviii., 1 Heft, p. 187, 1875.

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55. Zuckerkandl.—On the Recessus Salpingo-pharyngeus. *Mon.schr. für Ohrenheilk.*, viii., ii., 1874, ix., ii., 1875.

56. Dumenil.—On Unilateral Paralysis of the Soft Palate, of Central Origin, with Cases. *Arch. Gén. de Méd.*, April, 1875.

Dumenil, in considering the subject of *unilateral paralysis* of the *velum palati*, of central origin, observes that this symptom is to be regarded as by no means uncommon. It has been spoken of as a deviation of the uvula, an incorrect expression, inasmuch as it conveys the idea that the presence of this inclination is sufficient to show the presence of paralysis. It has been observed by Debron that the uvula is inclined more or less from the median line in many persons, and hence the diagnostic value of this deviation is destroyed.

There is, however, Dr. Dumenil points out, a more sure indication to be found in the unsymmetrical condition of the two halves of the isthmus of the pharynx during muscular action. The author gives a series of twelve cases in two categories:

(1.) Unilateral paralysis of the velum palati without appreciable paralysis of the facial muscles. (2.) The concurrence of paralysis of the velum with facial paralysis.

The question arises, whether the nervous filaments which supply the muscles of the velum palati have a distinct origin, or whether the pathological condition is restricted to a few filaments so closely adjoining that they may almost be regarded as having a common origin. The value of this form of paralysis in diagnosis is fully borne out by the histories of the cases which are given in the essay. The lesion appears to be one of frequent occurrence, and one, the author remarks, that has not been recorded sufficiently often because it has not been carefully looked for. Dr. Dumenil observes that he does not regard every unilateral paralysis of the velum as being of central origin. He eliminates lesions of the facial nerve in the aqueduct of Fallopius as one of the causes, which is readily distinguished by the effect of electricity, at the same time he points out that this last form of paralysis may be coincident with a central lesion.

57. Homolle.—On Scrofulous Angina; Lupus of the Throat. *Gaz. des Hôp.*, No. 49, April 27, 1875.

58. Lemaîstre.—On Chronic Scrofulous Angina. *Delahaye*, Paris, 1875.

The author describes under this name an affection which is characterized by the presence of dry scabs or crusts, hard and thin, upon the posterior pharyngeal wall; under these crusts there is no ulceration, but only a swelling of the mucous membrane. He admits that the form of disease which he describes (p. 16) is but a variety of the chronic naso-pharyngeal catarrh.

This superficial angina is located at the superior parts of the pharynx, and does not tend to spread downward to the larynx, nor involve the Eustachian tubes.

The treatment is tedious, consisting in the use of the nasal douche, astringent gargles, and in general constitutional treatment.

59. Landrieux.—On Scrofulous Angina. *Arch. Gén. de Méd.*, December, 1874.

Landrieux, in speaking of *scrofulous angina*, says that the origin of the malady is obscure, its advance insidious, unaccompanied by pain and marked by no prefatory signs of inflammation of the mucous membrane of the pharynx and adjoining parts, which it specially seizes upon. He believes that the pillars of the fauces and the soft palate are usually the first point attacked, and that when patients are first seen there are signs of previous mischief in the shape of cicatrices, adhesions and deformities, the pharyngeal lesions being at the same time in full operation. The appearance generally is that of induration with hypertrophy of the tissues, together with radiating adhesions. The tonsils and adjacent mucous membrane frequently escape for a considerable time the morbid action, and this fact is somewhat diagnostic of this scrofulous disease from syphilis which frequently attacks primarily these parts of the throat. Isambert states that the characteristic features are the gray, dirty-looking ulcerations, superficial only, and with irregular margins. The lymphatic glands are not involved by this ulcerative process, which, although it shows a preference for the posterior pharyngeal wall, will at times invade surrounding parts. The course of the malady is habitually exceedingly gradual, and one of its most frequent modes of termination is by the onset of pulmonary phthisis. The diagnosis of the disease is attended by considerable difficulty, and the differential diagnostic points between it and ulcerative or gummatose tertiary syphilitic angina, tubercular lesions of the mouth and throat, tuberculous lepra, or elephantiasis of the Greeks, and cancer, are fully given by the author in his paper.

A review of the characters of the malady leads to its being regarded as a malignant ulcerative angina, of scrofulous origin, and to its pathological position alongside *lupus exedens* of the face, otherwise it may be spoken of as a lesion identical with hypertrophic, scrofulous, or tubercular lupus.

60. Marrotte.—Neuralgia of the Isthmus of the Fauces, and of the Pharynx, simulating Inflammatory Angina. *Presse Méd. Belge*, No. 16, March, 1875.

The four cases cited by Marrotte of neuralgia of the isthmus of the fauces which simulated inflammatory angina, and were cured by the use of quinine and narcotics, tend to demonstrate that, in catarrhal affections, the neuralgic element may develop congestive and spasmodic phenomena which resemble inflammatory conditions, but with which they have no relation. The lumbo-abdominal inflammations, for instance, may be the point of departure for certain uterine troubles, as demonstrated by Marrotte. The neuralgias of the fauces may also cause the phenomena of congestion and inflammation in the pharynx. It is, therefore, necessary to differentiate the neuralgia of the isthmus of the fauces from inflammatory angina. In the latter, the amount of pain during deglutition is proportionate to the degree of turgescence and infiltration of the tissues; in the former, the pain may be excessive, even in the absence of all muscular movement, there may be spontaneous lancinating pains with short exacerbations, a feeling of strangulation, often commencing with the attack, lasting as long as it lasts, and passing off with sweating. In inflammations of the throat, the diminution and cessation of the febrile movement correspond with improvement in the local condition; in neuralgia of the throat the objective phenomena and pains often continue, and are even increased.

Sometimes the redness and swelling disappear before the pain, which latter persists after the affection has passed away, and may even localize itself in certain nerves of the head. The beginning of these neuralgias is by erratic chills, and the presence of abundant sweats during the first period. The periodical exacerbations, commencing by chills and terminating by sweats, the existence of neuralgic symptoms, and particularly of frontal headache, allow of their being classified with the group of catarrhal affections. To combat the periodical element, Marrotte employs sulphate of quinine; for the painful symptoms he uses sulphate of atrophia.

61. Jacobs.—Erysipelas of the Pharynx, following that of the Face. *Presse Méd. Belge*, No. 16, March, 1875.

62. Wheeler.—Successful Removal of a Foreign Body impacted in the Pharynx, by Pharyngotomy. *Medical Press and Circular*, April 14, 1875.

The successful removal of a foreign body impacted in the pharynx, by the operation of pharyngotomy, has been recently accomplished by Dr. Wheeler. The patient had been sewing on a button, and having put the needle in his mouth, eye foremost, it slipped down into his throat. Laryngoscopic examination showed the needle, somewhat obliquely situated, the eye-end being buried in the left palato-pharyngeus muscle—the point in the left arytenoid cartilage; all attempts at its removal by the mouth were unavailing, and pharyngotomy was decided upon. Dr. Wheeler describes the operation as follows: An incision was made on the left side of the neck, commencing at the body of the os hyoides to the superior margin of the cricoid cartilage. Each layer of fascia was cautiously divided, and the common external and the internal carotid artery came into view; also the superior thyroid artery, and the superior laryngeal nerve, with a few descending filaments of the twelfth nerve. The attachment of the crico-hyoid muscle was next separated, and the vessels retracted and kept to the outside; a staff was then passed into the mouth and pharynx, causing the latter to bulge to the left side, and at this prominent point a small incision was made to allow the tip end of the index-finger to pass. The opening was then enlarged by means of the fingers, and the needle found and withdrawn.

The following practical points in connection with the operation are mentioned by Dr. Wheeler: (1.) To arrest hæmorrhage from the small vessels necessarily severed, immediately, so as not to obscure any of the parts to be divided, which should be well examined before being cut. (2.) To have the vessels well retracted. (3.) To have a staff put into the pharynx to make it bulge. (4.) Not to pass a knife into the pharynx to enlarge the opening up and down, lest the filaments of the nerves be wounded. (5.) To operate on the left side of the neck, being more convenient to the surgeon, unless the foreign body is bulky and bulges on the right.

63. Zaufal.—Studies on the Normal Movements of the Pharyngeal Orifices of the Eustachian Tubes, with Drawings. *Archiv für Ohrenheilkunde*, 6 and ix., Heft iv., March 8, 1875.
64. Trautmann.—A New Apparatus for spraying the Pharyngeal Space. *Archiv für Ohrenheilkunde*, March 8, 1875.
65. Dupuy.—A Contribution to the Study of Naso-Pharyngeal Polypi. *Le Progrès Méd.*, March 6, 1875.
66. Ory.—On Polypi of the Posterior Portion of the Nasal Fossæ. *Le Progrès Méd.*, April 10, 1875.
67. Pamard.—Naso-Pharyngeal Polypus; Case. *Société de Chir.*, *Gaz. Hebdom.*, No. 16, 1875.
68. Polyak.—On Removal of a Sarcomatous Tumor from the Pharyngeal Space; Resection of the Superior Maxilla. *Wiener med. Wochenschrift*, No. 14, 1875.
69. Busey.—Two Cases of Polypus, one of the Uvula, the other of the Tongue. *American Journal Medical Sciences*, April, 1875.
70. Watson.—A Case of Pharyngeal Diverticulum. *Journal Anat. and Phys.*, xv., p. 134, 1875.
71. Oberrit.—Retro-Pharyngeal Abscess. *Wiener Med. Presse*, No. 47, 1874.
72. Bley.—Idem. *British Medical Journal*, September, 1874.
73. ———.—Retro-Pharyngeal Abscess, with Caries of the Vertebræ. *Medical and Surgical Rep.*, Philadelphia, April 24, 1875.
74. St. Germain.—On Amygdalotomy. *Annales de l'Oreille et du Larynx.* March 1, 1875.
75. ———.—Excision of the Tonsils. *Revue de Thér. Méd. et Chir.*, March 15, 1875.

A writer in the *Revue de Thér. Méd. et Chir.* for March 15th, in a note upon amygdalotomy, states that the operation is sometimes attended with fatal hæmorrhage, but that it is never necessary to remove the whole or even the greater part of a tonsil, the cicatrization following on removal of the superficial parts alone sufficing to reduce its size, nor is it essential to operate on more than one of these organs. Strong preference is given to the employment of the guillotine over the bistoury, because of the less liability to accidents.

76. St. Germain and Verrier.—Excision of the Tonsils. *Gazette Obstet.*, *American Practitioner*, May, 1875.

Verrier remarks that removal of the tonsils should not be done if avoidable. Even though much enlarged, surgical intervention is not always necessary, astringent gargles, cauterization with nitrate of silver, tincture of iodine to the anterior part of the neck, may be sufficient. Especially should removal not be made if the tonsils are inflamed. He says further that deafness has sometimes followed ablation of the tonsils.

77. Dowling.—Naso - Pharyngeal Polypus; Case. *British Medical Journal*, May 29, 1875.
78. Catti.—Stenosis of the Pharynx; Hereditary Syphilis. *Wiener med. Presse*, No. 18, May 2, 1875.
79. Castan.—Bronchial Pemphigus. *Montpell. Méd.*, December, 1874, p. 483.
80. Lemaîstre.—On Superficial Chronic Scrofulous Angina. *Thèse de Doc. de Paris*, 1875.
81. Lancereaux.—Tuberculous Ulcers of the Tongue, etc. *Union Méd.*, No. 7, 1875.
82. Godlee.—Rupture of the Trachea ; Case. *Lancet*, December 5, 1874.
83. Tujague.—On Diffuse Submucous, Phlegmonous Inflammation of the Mouth. *Thèse de Paris*, 1874.
84. Mollière.—On Rare Tumors of the Tongue, Hydatid Cyst, Lipoma. *Progrès Méd.*, No. 1, 1875.
85. Rumbold.—A New Tubular Laryngeal Forceps. *St. Louis Medical and Surgical Journal*, April, 1875.
86. Larghi.—Treatment of Bronchocele. *Ann. Univ.*, ccxxvii., p. 260, 512, ccxxviii., p. 183, 1874.
87. Wilson.—On the Causes of Bronchocele. *Medical Times and Gazette*, December 19, 1874.
88. Restellini.—Tumor of the Right Lobe of the Thyroid Gland simulating an Aneurism. *Gazetta Medical Ital. Lom.*, No. 45, 1874.
89. Valette.—Treatment of Cystic Bronchocele. *La France Méd.*, Nos. 8 and 9, 1875.
90. Lister.—Removal of a Goitre; Previous Ligature of Arteries. *British Medical Journal*, March 13. 1875.
91. Milligan and Tupper.—Removal of the Right Lobe of the Thyroid Gland, for Cystic Degeneration. *Philadelphia Medical and Surgical Reporter*, May 8, 1875.
92. Tait.—Enlargement of the Thyroid Body in Pregnancy. *Edinburgh Medical Journal*, May, 1875.
93. Heine.—Two Cases of Carcinoma of the Œsophagus. *Böhm ärzte Corr.*, Bl. iii., No. 22, January, 1875.
94. Hope.—Stricture of the Œsophagus and Retro-Pharyngeal Abscess. *British Medical Journal*, February 20, p. 244.
95. Kebbell.—Stricture of the Œsophagus; Case. *Lancet*, January, 1875.
96. Chandelux.—Cancer of the Œsophagus, etc.; Case. *Lyon Médical*, March 21, 1875, No. 12.

97. Brigham.—Impaction of a Coin in the Œsophagus. *Western Lancet, Medical News and Library*, May, 1875.

98. Guyon.—Foreign Bodies in the Œsophagus. *Bull. Gén. de Thérap.*, April 30, 1875.

99. Chassagny.—Œsophageal Catherization. *Soc. de Chir.*, *Gaz. Hebdom.*, No. 16, 1875.

100. Bigelow.—Turbinated Corpora Cavernosa; Plates, References, etc. *Boston Medical and Surgical Journal*, April 29, 1875.

Dr. H. J. Bigelow calls attention to the existence of an erectile tissue upon the turbinated bones of the nose. This tissue he designates as *turbinated corpora cavernosa.* Some of the phenomena observed in acute nasal catarrh are supposed to be owing to the erection of these cavernous bodies. The article is prefaced by six fine plates. Two of them are from Kohlrausch, a portion of whose minute description of the erectile tissue in the nose is quoted.

101. Maxwell.—On Muriated Tincture of Iron, as a Cure for Nasal Polypi. *Philadelphia Medical Times*, April 17, 1875.

Maxwell states that nasal polypi (the common or gelatinoid variety) can be removed certainly and expeditiously by the use of an injection of the muriated tincture of irom—and that all tendency to repullulation of the polyps is effectually checked and their reproduction prevented by its employment. He injects about a drachm of the tincture of iron, reduced in strength one-half by admixture with water, into the affected nostril—and causes the patient to throw the head backward, in order that the solution may remain for a few seconds in contact with the polyps. Three or four applications are generally all that are required. The irritation of the nares caused by the dilute tincture is trifling in severity, and of short duration.

102. Lafont.—Spontaneous Cure of a Naso-Pharyngeal Polypus in a Child. *Gaz. Hebdom.*, 2, Sér. xi., 3, p. 37, 1875.

103. Terrillon.—Treatment of Nasal Mucous Polypi. *Bull. de Thér.*, lxxxvii., p. 533, December 30, 1874.

104. Stoerk.—Chronic Contagious Blenorrhœa of the Nasal Mucous Membrane. *Berlin klin. Wochsch.*, No. 48, 1874.

105. Eyselein.—On the Treatment of Ozœna, by Chlorate of Potash. *Deuts. Zeitsch'ft f. Pract. Med.*, No. 41, 1874.

106. D———.—Tannin, in the Coryza, of Infants and Adults. *Tribune Méd.*, January 17, 1875.

Dr. D———, in writing upon the subject of the treatment of coryza in children and adults, by tannin, says that the first symptoms of the affection are congestion of the mucous membrane of the nasal fossæ, with dull headache and dryness of the mouth and throat, more noticeable when swelling of the mucous membrane closes the nasal passages completely, obliging the patient to breathe with the mouth open. These being the symptoms, it is evident that, if an energetic contraction of the mucous membrane can be brought about, relief will ensue, and he obtains this result constantly by the use of tannin as follows: Tannin, gr. ¾, pulv. iris, pulv. altheæ, āā gr. xv., tinct. vanilla, gtt. iv. Small pinches of the powder to be taken four times a day, or oftener if necessary. In children he uses an ointment (tannin, gr. ¾, axungiæ, ℈j–ʒj), and introduces it into the nostril by means of a small roll of paper, coated over with the preparation, and passed deeply into each nasal fossa.

107. Shurly.—On Coryza. *Detroit Rev. of Med.*, April, 1875.

108. Mason.—On a Case of Myeloid Sarcoma of the Septum Nasi; Several Operations; Good Result. *Medical Times and Gazette*, May 22, 1875.

109. Massei.—On Removal of a Growth from the Larynx with the Aid of Local Anæsthesia. *La Clinica*, March 31, 1875.

Dr. Massei reports a case in which he removed a papillomatous growth from the larynx of a woman, aged thirty-two, who had suffered from aphonia for five months, with the aid of local anæsthesia, to overcome the great irritability of the throat. He commenced the treatment at 9.30, on February 21st, by penciling the interior of the larynx with pure chloroform. This caused slight giddiness, which was relieved by an ammoniacal draught. At 11 the larynx was penciled with a saturated solution of morphia, which was well tolerated. Chloroform was again applied at 12.30, and morphia at 2. Notwithstanding this persevering treatment, at 2.30 anæsthesia was not established; further repetitions of the anæsthetics were made at short intervals; but, still, at 3.30, the desired result was not completely obtained. The patient, however, was tired of the anæsthetic treatment, and the doctor proceeded to operate. It was found that, though complete anæsthesia had not been produced, the sensibility of the larynx had been greatly diminished, and Dr. Massei succeeded in removing the growths with the forceps comparatively easy.

110. Englisch.—On tamponing the Nares. *All. Wiener medizinische Zeitung*, No. 20, May 18, 1875. Pp. 191.

111. Schnitzler.—A Case of Membranoid Occlusion of the Glottis. *All. Wiener medizinische Zeitung*, No. 20, May 18, 1875.

112. Schnitzler.—On Aphonia Spastica. *Wiener medizinische Presse*, No. 20, May 16, 1875.

Schnitzler describes a rare and interesting form of laryngeal affection, which he terms *aphonia spastica* or *phonetic spasm of the glottis*, regarding the former as in contrast to the well-known *aphonia paralytica*, the latter as antithesis to the inspiratory spasm of the glottis which is so common. The affection depends upon a functional spasm of the muscles, similar in its character to writers' cramp, and other affections of a like nature, and is caused by a disturbance of the coördinating power. The symptoms in the first of the two cases, which he gives in illustration, were as follows: During phonation the vocal cords approached one another and a full sound or note was heard; as soon, however, as the patient endeavored to produce a higher note by phonating forcibly, the vocal cords were stretched unusually tight, the arytenoid cartilages were pressed spasmodically together, and no tone could be heard.

In the second case the patient had a scarcely distinguishable voice, and complained of pain and sense of oppression over the chest during the act of speaking, which often caused temporary dyspnœa if the effort were persisted in. Laryngoscopic examination showed the larynx to be normal in form and appearance, and that the vocal cords were not paralyzed, as suspected. Each attempt at phonation, however, resulted in a contraction of the vocal cords, and so close an approximation that not even the narrowest chink remained between them. The more the patient endeavored to produce a sound, so much more firmly and spasmodically were the vocal cords throughout their whole extent pressed together, until finally they appeared to overlie one another. The author explains the symptoms in this case as follows: It is necessary for the production of sound in phonation that the vocal cords be not only approximated, but that a slight opening should remain between them, through which the expiratory current of air may pass to throw them into vibration. In the case described, no such opening existed during the act of phonation; the column of air was cut off, and no laryngeal note or tone was formed. The production of the temporary dyspnœa is also explained by the physical conditions existing at the moment of attempted prolonged phonation.

113. Duguet.—Cases of Argyria caused by Repeated Cauterizations of the Pharynx with Nitrate of Silver. *Schmidt's Jahrbucher*, Band 166, No. 4, 1875. Pp. 19.

Two cases of this affection are detailed by Duguet: the first, a woman aged forty-six, who had been treated for several years by a quack for pain in her throat, by cauterizations of the pharynx with nitrate of silver, the application having been made some sixty times by him, and afterward, during the following two or three years, by herself—the product of the cauterizations, saliva impregnated with silver salts, etc., being swallowed each time. Her skin became discolored during the early years of the treatment, the violet tint being especially noticeable in the face, and gradually grew more intense. The palate and pharynx were less discolored than the face, and no change of color could be seen in the tongue, the gums, and the lips. The remaining mucous membranes appeared normal. The pain in the head from which the patient had suffered for many years was relieved by potash, but the history and the *post-mortem* appearances gave no indications of a syphilitic affection.

The second case is reported by Krishaber, as occurring in a man, aged thirty-eight, upon whom tracheotomy had been performed when eight years old, after an attack of measles, and in consequence of which the voice had been lost. For the last few years, his throat had been penciled several times each week with a solution of silver. He had never taken silver internally. His skin was of a bluish-gray color; the discoloration being most marked in the face, and on the hands and nails. The gums were not discolored, but the pharynx was of a black color. The vocal cords appeared bluish.

The author remarks that these cases prove that argyria may be caused by the too frequent and long-continued cauterizations of the pharyngeal mucous membrane with nitrate of silver. He believes that the silver is absorbed by the mucous membrane, but that the swallowing of the saliva charged with silver salts also plays an important *rôle* in the production of the disease. He remarks that in neither case were the gums discolored, but says that this appearance is often wanting in cases in which the organism is saturated with silver. The cases are of special importance as proving that the action of silver, applied to wounds, and to mucous membranes, is not limited to the one point treated.

Translations.

The Diseases of Iceland. (Translated from the *Hospitals-Tidende* for December, 1874, by Geo. R. Cutter, M. D.)—The Danes have especial facilities for enlarging our knowledge of geographical pathology. There is no other portion of the arctic regions where there is such a regular and relatively abundant provision of highly-educated physicians, as in their northern settlements and colonies, or where the conditions are so favorable for a critical and accurate investigation of the nosological condition. The Danes have not neglected this scientific duty, for nearly all the information we possess concerning the diseases of the polar regions has been derived from Danish physicians. Unfortunately, these writers were not residents, but travelers, who remained but a short time in the land they were describing.

Dr. Jón Finsen, the author of "Jogttagelser angaaende Sygdomoforholdene paa Island," Copenhagen, 1874, is an Icelander and has practised medicine there for ten years, and has had regular medical charge of more than one-sixth of 70,000 inhabitants. During all this time he has kept accurate clinical notes of 7,539 cases under his treatment, and has, therefore, enjoyed the best opportunities for obtaining a thorough knowledge of all that pertains to the nosographical conditions of the country, the customs, and the hygienic condition of the people.

It does not appear that any diseases occur in Iceland, with the exception of a single skin-disease, which may not also be met with in more temperate climates; but those diseases which do occur, and especially the more common ones, present peculiarities with regard to their frequency, danger, epidemic nature, etc. Such a peculiar condition is shown, for instance, by the occurrence of epidemic contagious thoracic affections—different from influenza—called by the author "epidemic thoracic catarrh," although the disease does not invariably present itself in the form of a catarrh, but frequently as a pneumonia or a pleurisy. Of the 155 cases he observed, 72 were of the catarrhal form, 42 pneumonic, and 41 pleuritic. Two such epidemics were observed; the first lasting from the fall of 1859 to the end of 1860, spreading from the western portion of the northern district over the whole country, and terminating in the eastern district. The second, on the contrary, commenced in the eastern district, spreading in a westerly direction over the entire country, till it terminated in the winter of 1863. These epidemics are peculiar, in a pathological respect, not only because of the marked contagious nature of the catarrh, but also from the remarkable fact that one and the same epidemic consisted of such various forms of disease as catarrh, pneumonia, and pleurisy, and that the last two inflammatory diseases were contagious. There can be no suspicion of a mistake in the diagnosis, for similar epidemics also occur in Greenland. It is there called the "snuffles" epidemic, and also consists of catarrh, pneumonia, and pleurisy, but it occurs regularly every year at the same season, and spreads over the country, with a strongly-developed contagiousness, passing from north to south, and later in the year, with a retrograde movement from south to north. It is of a more dangerous character, however, than the Icelandic epidemic, a very considerable proportion of the cases terminating fatally.

Epidemics of influenza are of more frequent occurrence, and, from their wide extent, play a more important *rôle* than in Europe. The author passed through three such, which did not present any peculiarity other than their great intensity. In one of these, 2.37 per cent. of the population of his district perished. According to Hjaltelin, 10,000 human lives have been lost in Iceland during the last fifty years by epidemics of influenza. The largest proportion of fatal cases occur in early childhood, before the fifth year, and are also frequent after the fiftieth; very few patients between five and thirty die of the disease. When the disease once commences, it travels in every direction, without regard to wind or weather, with such rapidity as to spread throughout the whole island in less than two weeks. It lasts from six to eight weeks, and in this time has, with few exceptions, attacked the entire population.

Earlier writers have very much overstated the frequency of echinococci among the Icelanders; one author stating that every seventh person had them, another that they were the cause of one fifth of all the deaths occurring on the island. Dr. Finsen had 298 cases under treatment, and is of the opinion that the frequency of clinically recognizable cases is limited to one in every forty or fifty of the total population. The cause of this frequency is ascribed to the intimacy existing between the numerous dogs and the inhabitants. The statement of recent writers, that charlatans use dog's urine and excrement in the treatment of certain diseases, is denied. Küchenmeister is also mistaken in ascribing the frequency of this parasite "to the warm temperature of the river-water, which is often used for drinking;" for river-water is rarely warm, and if so, it is never drunk. The Icelanders generally ascribe the disease to a contusion which has occurred at the point where the parasite becomes developed. Although this theory is to be rejected, the author is, nevertheless, of the opinion that an external or internal stimulus is often necessary for the development of a previously latent echinococcus. Not unfrequently they make their first appearance, or at least begin to develop rapidly, during the course of other diseases and during pregnancy. In all classes of society this parasite occurs much more frequently in females than in males, and this is probably due to the nature of their occupation. In preparing food and taking care of the cooking-utensils they are more apt to swallow the *Tenia echinococcus* of the dog.

Though tetanus neonatorum occurs in certain portions of the island to an extent scarcely equaled in the worst tetanus regions of the tropics, its frequency has also been very much exaggerated. Schleisner considered it endemic over the whole island, and thought it the especial cause of the great mortality among infants. This is true, however, only of two small islands, Vestmanaroe and Grimsoe. Dr. Finsen never met with or heard of any cases occurring in any other portion of his large district, and does not think that tetanus occurs endemically in either of the other districts. In the little island of Grimsoe, which lies six miles from the land, in the open harbor, there were in 1860 only 59 inhabitants; the average number of births in each year is three, and of these, as a rule, two die of trismus during the first week after birth. The cause of this endemic occurrence of trismus is ascribed by the author to the extremely bad hygienic condition of the inhabitants; they are all very poor, and live by fishing and bird-catching. Their nourishment consists almost entirely of fish and birds. The latter are very oily, and, after their breasts are cut off and salted, the carcass is used with fish-bones and scraps as a fuel, which naturally produces a fearful stench in their filthy hovels. The burning of such fuel is regarded as of great etiological importance, for the other portions of Iceland are, with this exception, in an equally bad hygienic condition.

Hay-catarrh is of extremely frequent occurrence, and has a chronic course. It occurs only in winter, during the time that the animals are kept in stables, and attacks only the men who take the hay from the stacks to feed the stock. The hay is often mouldy, and contains a sort of dust, the inspiration of which causes the catarrh. The disease lasts as long as the hay continues to be used, and commences with a cough: expectoration is generally scanty; the respiration is difficult, and becomes much worse at night, just after the foddering-time.

Water-brash is another very common disease; it occurs chiefly among women between twenty and forty years of age, with a special predilection for those in a chlorotic condition. It is doubtless caused by the peculiar manner of living, and especially by the miserable and very indigestible food used. It is a "pyrosis insipida," in which, during a cardialgic access, a profuse, clear, watery fluid rises from the stomach to the mouth, often accompanied by vomiting, after which the cardialgia ceases. The appetite is, as a rule, good; the tongue is red, sometimes a little coated; the stools are natural; the cardiac region is often somewhat tender on pressure.

The "fox-worm" (Ræveorme) appears to be a skin-disease quite peculiar to Iceland. It attacks only the hands; red, slightly-elevated patches, about the size of a three-cent piece, appear on the backs of the hands, and on these small vesicles are developed. After these papules, which, as a rule, commence near the wrist, have lasted for some time, they dry up and disappear, apparently by desquamation, to be followed by a similar outbreak farther down on the back of the hand; these, again, dry up and are followed by others, thus gradually approaching the extremities of the fingers. On the palmar surface the disease appears as cracks and furrows. When the eruption reaches the extremities of the fingers the matrix of the nail appears to be attacked, for the nail, without apparent inflammation or ulceration, is completely loosened, becomes brittle and splits up in an horizontal direction into laminæ. The disease may continue for a long time in this stage, but after a longer or shorter period the nail falls off, and there is formed in its place, commencing at the matrix, an hypertrophic, deformed, rough nail, which is markedly lamellar in its structure, and generally projects beyond the end of the finger. In this case, its free end is thickest (about 2‴). Sometimes it does not reach to the end of the finger, in which case it is thickest at its middle. Such a nail is called in Iceland a *kartnægl.* When, after along continuation of the disease, this nail is formed, the process ceases, and the results, the *kartnægl* and sometimes a shining condition of the skin of the hands (which has lost its natural softness), last during the remainder of the patient's life. The disease is regarded as incurable. The author considers it of parasitic origin, but does not state whether it is contagious. He has observed thirty-one cases.

Among the few other conditions which give a peculiar character to the diseases of Iceland, may be mentioned the great frequency of febrile rheumatism, partly in the form of epidemic pleurodynia; the prevalence of the itch, and the (of late) somewhat more rare cases of Spedalskhed. Of still greater importance is the absence or rarity of certain forms of disease which are most common among us. Phthisis, for instance, is very rare; the author met with but four cases among the native born, and ascribes its absence to the even temperature. Syphilis is scarcely known in Iceland, and but few cases have been introduced. Acute articular rheumatism is also very rare, and likewise appears not to occur in Greenland. Small-pox, measles, scarlet fever, and whooping-cough, did not occur while Dr. Finsen practised medicine in Iceland, and the three last-mentioned diseases appear to have been rarely introduced.

Plaster Casts of the Orifice and Neck of the Uterus.—Convinced that both sight and touch give but imperfect information concerning the exact conditions of form and position of the internal genitals of the female, and that the treatment in consequence is erroneous, Levy, of Munich, has undertaken experiments in order to establish more certain indications for treatment. He first attempted to obtain imprints of the organs by means of soft wax, but failed; but by employing plaster of Paris he obtained good results. His process is as follows: The woman being placed on the back, with the nates elevated, the vagina and neck are thoroughly cleansed with soap and oil; the cervical and surrounding portions are then exposed by means of Coxeter's valvular speculum, care being taken that there shall be no distention of the vagina. The soft plaster is then poured in through a long glass speculum, and, before it has hardened, the valvular speculum is slightly withdrawn, so as to allow the plaster to penetrate well into the vaginal *cul-de-sac.* At the end of five minutes, the cast is removed, and may then be used as a matrix.

Neuralgia cured by Massage.—G. Berghman communicated to the Swedish Medical Society the results of the treatment of three cases of neuralgia by massage. The first case was that of a woman, forty-two years of age, who had suffered during more than four years from severe neuralgia of the ulnar nerve. The pains were so severe and so completely incapacitated her for the slightest household-work that she was admitted to the hospital for incurables. On examination, the ulnar nerve was found to be extremely sensitive throughout its entire length, and more especially at the elbow. After the application of the massage for several months, she was free from pain and able to work. The second case was a man, fifty-four years of age, who had for five years suffered neuralgia of the trigeminus in the left side of the face. At last the pains occurred every five minutes during the day and constantly awakened him from his sleep at night. The pain was very severe, but no special *puncta dolorosa* could be discovered. After treatment for six days he had intervals of freedom from pain for three-quarters of an hour; in three days more the painless intervals had increased to two hours, and after ten days' treatment the pains ceased entirely. This patient was exhibited to the society. The third case was a woman, thirty years of age, who had, for more than two years, had the ordinary symptoms of coxydynia. After eight days' treatment she was relieved from the tenderness and pains, and has since remained well.—*Nordiskt. Med. Arkiv.*, vol. vi., No. 2.

G. R. C.

On Erysipelas.—In Germany numerous authors sustain the theory of the infectious nature of erysipelas. Hueter, following Billroth and Volkmann, is convinced that erysipelas can be compared to the diphtheria of wounds, and he attributes its cause to the development of bacteria and bacteridæ in the tissues by invasion from without. Judging from the conclusions of W. Lukomsky (*Virchow's Archiv*, 60), he has demonstrated an intimate relation between erysipelas and the development of micrococci in the interior of the lymphatics and interstices of the subcutaneous cellular tissue. The author's clinical observations, nine in number, have demonstrated in five cases the presence of a large number of bacteria in the lymphatics and cellular tissue of patients dead from erysipelas; in four cases these micrococci were not observed. Their absence is attributable, according to the author, to the period of the disease, the bacteria having been observed only in cases where the erysipelas was recent and in process of evolution. Experiments were then made in the rabbit: when more or less putrid fluids containing bacteria were injected under the skin, subcutaneous phlegmon and inflammation of the skin followed; but from the discharge of an erysipelatous pustule, rich in bacteria, he obtained no trace of the development of bacteria or of inflammation of the skin. Lukomsky correctly concludes that these lesions are not identical with those of erysipelas, and in a second series of experiments he first caused a wound of the skin, and then deposited in it putrid fluids containing bacteria, and thus obtained cutaneous and subcutaneous inflammations analogous in every respect to those of erysipelas.—*Gaz. Hebdomadaire*, 41, 1874.

E. F.

Miscellany.

Appointments, Honors, etc.—Dr. T. Gaillard Thomas has been elected President of the Medical Board of the Nursery and Child's Hospital, in place of the late Dr. Edward Delafield. Dr. William B. Atkinson, who has labored zealously for many years as Permanent Secretary of the American Medical Association, was at the last meeting presented a bonus of $750, in recognition of his valuable services. Dr. Charles Bucknill, of England, is now on a visit in this country. Dr. Thomas Bevin has been elected President of the Chicago

Society of Physicians and Surgeons for the ensuing year. Colonel J. H. Baxter, chief medical purveyor of the United States Army, recently graduated from the Law Department of Columbian University, and was admitted to the bar of the Supreme Court of the District of Columbia. The Jefferson Medical College has bought ground adjacent to their present edifice, for a hospital, to be in direct connection with the college.

Mr. Bryant has been appointed Lecturer on Surgery in Guy's Hospital, in place of Mr. John Birkett, resigned. A new ophthalmic hospital is to be erected in Sheffield, England, at a cost of $65,000. Dr. W. Arthur Brailey has been appointed Lecturer on Comparative Anatomy at the St. George's Hospital Medical School. Mr. Charles Darwin has been appointed Foreign Honorary Member of the Imperial Academy of Science, Vienna.

Ann Arbor Medical College.—At the commencement exercises of the Medical Department of the University of Michigan, held in March, 1875, sixty-five gentlemen received the degree of Doctor in Medicine.

A new system of preliminary examinations has been adopted by this school, and will be enforced at the next session. All applicants for matriculation, except those having collegiate or academical degrees, will be required to pass a thorough examination to prove their fitness to enter on the study of medicine with advantage. This is a very wise and important regulation, and one that should be insisted upon by all medical schools. At present it is either neglected altogether, or made a mere empty formality.

The Indiana State Medical Society.—The annual meeting of this Society was held in Indianapolis May 18th and 19th, Dr. H. E. Haughton, President. The attendance was full, and a large amount of business was transacted. We are glad to see that the Society is not afraid to call delinquents to account, and drop their names from the list of members in case of irregularity.

The following were elected officers for the ensuing year:

President, Dr. J. H. Helm, of Peru; Vice-President, Dr. F. W. Beard, Vincennes; Secretary, Dr. G. V. Woollen, Indianapolis; Assistant Secretary, Dr. J. W. Elston, Indianapolis; Treasurer, Dr. J. H. Wooburn, Indianapolis; Librarian, J. R. Featherston.

A Singular Obstetric Custom.—According to a correspondent of the *Lancet*, the following custom "prevails largely in Yorkshire:" The patient is confined with her clothes on, *all* her clothes (except, perhaps, her bonnet and shawl)—boots, stockings, drawers, petticoats, stays, dress, and the rest. If labor happens to set in when the woman is undressed in bed, the first rush on the part of herself and friends is to get her clothes on. She then usually lies down on the under mattress, the upper mattress or bed being turned over out of the way, and the labor goes on to its termination. When the placenta comes away, the woman, without any further delay, is "got into bed," as it is called. This process consists in her getting up and standing on the floor, or sitting in a chair, while her clothes are taken off, a clean night-dress put on, and the bed made, when she mounts into it as if nothing particular had occurred.

New Jersey State Medical Society.—This venerable Association held its one hundred and ninth annual meeting in Atlantic City, May 26th, Dr. Larison presiding. Several excellent papers and reports were read, and the business before the Society was disposed of without loss of time. The following were the officers elected for the ensuing year: President, Dr. William O. Gorman, Newark; First Vice-President, Dr. John V. Schenck, Camden; Second Vice-President, Dr. H. R. Baldwin, Middlesex; Third Vice-President, Dr. John S. Cook, Warren; Recording Secretary, Dr. William Pierson, Jr., Orange; Corresponding Secretary, Dr. William Elmer, Trenton; Treasurer, Dr. W. W. L. Phillips, Trenton; Standing Committee, Drs. S. Wickes, S. Thornton, and Thomas Ryerson. The next meeting will be held in Cape May.

Charlatanism abroad.—We learn from the *Medical Times and Gazette* that a society of medical men is about to be organized for the purpose of preventing the practice of medicine by those who are destitute of the proper qualifications. It would seem from this that the problem which proves so perplexing in this country is not yet entirely solved by the perfect system of registration which exists in Great Britain. We notice also that at the meeting of the French Medical Association, the report of the secretary deplored the extent to which charlatanism prevails throughout the provincial districts of France, every branch of medicine and surgery being practised by the most illiterate quacks "with impunity and with great profit."

The Illinois State Medical Society.—At the twenty-fifth annual meeting, held in Jacksonville, May 18th to 20th, the following officers were elected for the ensuing year: President, Thomas D. Washburn, M. D., Hillsboro; First Vice-President, J. L. White, M. D., Bloomington; Second Vice-President, John Wright, M. D., Clinton; Treasurer, John H. Hollister, M. D., Chicago; Permanent Secretary, T. Davis Fitch, M. D., Chicago; Assistant Secretary, C. B. Johnson, M. D., Tolona.

The session was one of unusual interest, and many valuable papers and reports were read and discussed.

A History of Vaccination.—A book will shortly be issued in Paris, by Dr. Burggraeve, a professor in the University of Ghent, and chief surgeon to the hospital of that town, in commemoration of the first centenary of the immortal Jenner. The work is designated "Histoire Générale de la Vaccine; ou, Monument à Edourd Jenner à l'Occasion du premier Centenaire de son Invention." It will be published by subscription, and under the patronage of the King of the Belgians, the Emperors of Russia and Austria, the Kings of Sweden, Holland, and Italy, and the Emperor of Brazil.

The Weight of Volta's Brain.—The remains of the celebrated Italian philosopher Volta, who died in 1827, were recently exhumed in Como, and deposited with imposing ceremonies in a splendid mausoleum which had been prepared for them. A careful scientific examination of the cranium was made, and it was estimated that the weight of the brain must have been 2,055 grammes. That of Cuvier, among the heaviest recorded, was only 1,829 grammes.

Monument to Horace Wells.—A colossal statue of Dr. Wells, in bronze, has been executed by Truman H. Bartlett, and is to be erected in the city of Hartford. An appeal is made to physicians, dentists, and others, for funds to complete and ornament the pedestal. Communications may be addressed to Dr. E. K. Hunt, chairman of the Committee of the Hartford Medical Society. Subscriptions may be forwarded to Dr. G. W. Russell, treasurer, Hartford, Conn.

The Homœopathic Problem in Michigan.—The Board of Regents of the University of Michigan have determined to establish a sort of branch medical school in Ann Arbor, for instruction in materia medica and therapeutics, and the theory and practice of medicine, according to the homœopathic faith. Two professors are to have charge of the new department, and the students are to obtain their education in the other branches at the regular school.

Syphilitic Ghosts.—A correspondent of the *British Medical Journal*, writing from Vienna, reports Prof. Zeissl as saying at his clinic: "Some think, when a patient has for some time enjoyed immunity from manifestations of syphilis, that he is cured; but I tell you, gentlemen, that if a man contract syphilis he will die syphilitic, and at the day of judgment his ghost will have syphilis!"

Journalistic Notes.—The *New Orleans Medical and Surgical Journal* has been transferred from Dr. Bemiss to Drs. Seymour and Stevens. The *Psychological Journal* has made another change. Dr. Hammond has resigned the position of editor, and has been succeeded by Dr. A. McLane Hamilton, who intends making the journal quarterly instead of monthly. The *Deutsche Klinik* has suspended publication.

The French Medical Association.—At the recent annual meeting of this body it was announced that the central and branch societies now number between six and seven thousand members, and that there is in the treasury a fund of nearly one million francs. Over thirty-two thousand francs were expended last year in the aid of needy members, and widows and children of members deceased.

Atmospheric Pressure on the Joints.—Prof. Aeby, of Berne, announces that, by recent experiments, he has satisfied himself that in the most important joints of the human body the atmospheric pressure is fully adequate to insure contact of the bones, even after the division of all the soft parts, including the capsule. This, he says, is true even of the joints of the hands and feet.

Fibro-Cystic Tumors of the Uterus.—Dr. Thomas Keith reports, in the *Lancet* of May 15th, three cases in which, for fibro-cystic tumors, he removed the uterus by abdominal section, making a pedicle of the neck of the uterus. In two of the cases only one ovary was removed. In one case both ovaries were removed. All the patients recovered.

A Rare Chance.—The monastery of Altenburg, Lower Austria, advertises for a resident medical attendant, at a salary of one hundred dollars per annum, who will be required to treat the patients of the establishment, and also to shave the beards and cut the hair of the holy brethren who dwell therein!

Death from Ether-Inhalation.—The *Medical Times and Gazette*, of April 17th, reports the death of a young man in the Manchester city workhouse, from the use of ether as an anæsthetic. A small quantity only had been given, when the patient ceased to breathe, and, notwithstanding efforts at resuscitation, died on the operating-table.

Dr. B. W. Richardson, in a note to the *Lancet* regarding the above case of death supposed to be due to the inhalation of ether, states that "pure anhydrous ether should be exempt from all blame in the fatal catastrophe," since the anæsthetic used was a fluid "composed of amyl hydride and anhydrous ether, the two fluids being blended until the specific gravity is equal to .650." This compound was intended solely for local applications as spray, and not for general anæsthesia. Its use in the fatal case reported argues inexcusable carelessness on the part of those in charge of the patient.

Liebig's Meat Extract.—We are able to speak from more than a year's experience of the uniform excellent quality of the extract manufactured by the San Antonio Company, Texas. We have found it one of the most efficient, agreeable, and economical of the many preparations of the kind.

Bone-Dust as Food.—It is mentioned in the report of the school for rickety children, recently established in Milan, that great benefit has been derived from the use of powdered bone, administered in milk.

The New Zoological Station at Naples.—This station, instituted for purposes similar to those for which Agassiz organized the school at Penikese, is graphically described in several of the European journals. The building itself is not on a scale with the aquaria of Vienna and Brighton, but the interest and importance of the aquarium consist in the variety and extent of the collection of marine animals, fish, shells, corals, mollusca, medusæ, crustacea, worms, sponges, starfish, etc., which people the tanks. These tanks contain all the animals which inhabit the depths of the sea. The medusæ and their congeners, as well as some other mollusks, do not thrive very well. There are in this aquarium, eight large octopods, one of which cut in two a large lobster with which he was having a fight. The pumps for supplying the tanks are worked for twelve hours a day; for the remaining twelve hours there is no current of fresh water, and the animals seem to thrive well under these conditions. Last summer some observations were made on the electric ray. An English zoölogist, who is preparing a work on the history of sharks, staid four months at the station, and during that time four hundred sharks'-eggs were placed at his disposal. This aquarium has thus become a field where naturalists can pursue their investigations, and where they find facilities for pursuing their studies and experiments in the buildings of the establishment itself. The director of the establishment informed the writer of these details that, since it was opened in February last, twenty-two naturalists had already come thither to work in the laboratories. It contains twenty rooms, which may be hired, and, in fact, are already let to foreign governments or scientific institutions.

It is believed that this establishment will exercise a beneficial influence on the development of the biological sciences; it owes its origin to a German naturalist, Dr. Dohrn; and the German booksellers have contributed to it a library worth about £1,500. The English naturalists, headed by Mr. Darwin, have also testified their interest in this novel scientific enterprise by a contribution of £1,000 to its funds.—*Boston Medical and Surgical Journal.*

Case of Quadruplets.—Dr. J. J. Schenck, of Mount Carmel, Illinois, reports the following case in the *Chicago Medical Examiner*, May 15th:

Was called at 10 A. M. May 2, 1875, to attend Mrs. Silas Andrus: a woman somewhat below the medium size; sandy complexion; aged thirty-eight years; eighth accouchment; American; and was given the following history:

She had regular menstrual returns until the 1st of December, 1874, the last three times not being in normal quantity; felt motion for the first time about the 1st of February, 1875; had felt as well as usual when in the pregnant condition, but thought herself much larger than in previous pregnancies at the corresponding stage.

At 5 A. M. labor-pains commenced; at 11 A. M. the first child (a female) was born; and in twenty minutes a male child was expelled; both vertex presentations. Efficient labor-pains now ceased until 1½ P. M., when, after the administration of 1½ drachm of fl. ex. ergot, in three doses, one-half hour apart, and abdominal friction, pains again commenced, and a third child (female) was born, followed by a male child in fifteen minutes; both podalic presentations.

In a few moments the placenta was passed; this was of an oblong shape, and attached to it were four umbilical cords, in as many separate sacs, which were variously adherent to one another as they approached the placental surface. The children are all of about the same size and weight, weighing near two pounds each, and have the appearance of having reached between the seventh and eighth month of fœtal life. The first child born lived twenty-four hours; the other three died within thirty minutes of their respective births.

Neither of the parents has any near relatives that have had plural births.

The Inventor of the Laryngoscope.—Most medical men are, we imagine, aware that, although more or less incomplete laryngoscopic examinations had previously been made in this country by the use of mirrors devised by Babington, Liston, Avery, and others, Signor Garcia, the well-known professor of singing, was the first who brought laryngoscopy to a practical position, and who practised autolaryngoscopy with the result of publishing at the Royal Society excellent "Physiological Observations on the Human Voice," containing a good account of the action of the vocal cord during inspiration and vocalization. The observations of Garcia led to the further work of Türk and Czermak; and he must probably be considered as in no remote sense the principal author of the modern art of laryngoscopy—an unquestionably valuable resource in modern medicine and surgery. A committee has been formed, of which Lord Coleridge is chairman, and which includes many well-known names in science and art, and among the friends of both, for the purpose of raising a subscription with the object of presenting a testimonial to Signor Garcia, "in special recognition of his claims as the inventor of the laryngoscope, and also as a mark of the high estimation in which he is held by all classes." Mr. George Critchett is the treasurer, and Dr. Morell Mackenzie the honorary secretary, of the fund.—*British Medical Journal.*

Dr. Elsberg, of this city, has been appointed honorary secretary of the above committee, for the United States.

Crayons of Iodoform.—M. Gallard prescribes crayons of iodoform, which he allows to remain in the cavity of the neck of the uterus, retained in position by means of a tampon of cotton. These crayons are used with advantage in cases of superficial ulceration of the neck which has invaded the cavity. The formula is:

℞. Iodoform, in very fine powder, ʒ ijss.
Gum-arabic, finely powdered, gr. vijss.

Sufficient mucilage to make into a pilular consistence. Divide into ten cylinders each about one inch long; dry in the air for twenty-four hours. Each crayon contains a little less than a grain of iodoform. These cylinders are hard and resistant; they may be divided into morsels without breaking. They become disintegrated in the open air, and much more rapidly in the uterine cavity. In order to preserve these crayons, they should be sealed in a dark and air-tight bottle. We should think this mode of employing iodoform would be useful in other localities.—*The Doctor.*

Excision of Tonsils.—A writer in the *Revue de Thérapeutique Medico-Chirurgicale*, for March 15th, in a note upon amygdalotomy, suggested by a new guillotine, states that the operation is sometimes attended with fatal hæmorrhage, but that it is never necessary to remove the whole or even the greater part of the tonsil, the cicatrization following on removal of the superficial parts alone sufficing to reduce its size; nor is it essential to operate on more than one of these organs. Strong preference is given to the employment of the guillotine over the bistoury, because of the inutility of removal of large portions, and the less liability to accidents. In support of the necessity of operating speedily in certain cases, a melancholy instance is given from the practice of the writer, in which the patient, a girl of sixteen years, suffering from angina with great enlargement of tonsils, literally died from asphyxia from excision being deferred, at the instance of a colleague, who thought hæmorrhage would be very severe, and that the case would speedily get well if left alone.—*Lancet.*

New Aids to Diagnosis.—At Rome a conference of the medical clinic of the university was held on the 18th of April, to hear Dr. Collongues explain the mechanism and working of three new instruments devised by him, and entitled the pneumoscope, the dynamoscope, and the bioscope, which promise to be of considerable use in the practice of medicine. With the pneumoscope are produced artificially all the abnormal murmurs proceeding from the respiratory organs in a state of disease; with the dynamoscope may be determined the scale of all the sounds which are made at the digital extremities by the continuous movement of the tissues; while the bioscope registers with precision the heat, the electricity, and the functional activity of the skin. Prof. Baccelli and others of the Medical Faculty of Rome expressed themselves highly pleased with Dr. Collongues's inventions, which will soon be made known to the professional world.—*Lancet.*

A New Form of Glycosuria.—M. Jules David has recently observed, in a case of diabetes following a large carbuncle, a substance resembling glucose in its reactions, but differing from any thing hitherto discovered. The urine reduced Fehling's solution, although less readily than ordinary diabetic urine. Liquor potassæ also caused a brown discoloration. But, on examining it with the polarizing saccharimeter, not the slightest trace of deviation could be discovered. Moreover, on analysis, no glucose whatever was found by the usual method. A solution of the substance, after isolation, reduced Fehling's solution readily. Its exact nature has not yet been determined, owing to failure of the supply of the urine.—*Lancet.*

Vaccination with Fatal Result.—Krügkula (*Wien. med. Wochenschr.*, No. 47, 1874) inoculated eight soldiers with vaccine lymph from a foundling hospital. In two there was no result. In the other six, in whom the vaccine pustule became quickly developed, there occurred chills within twenty-four hours, followed by high fever, weakness, and delirium.

Two to four days after the vaccination, phlegmonous inflammation of the upper arm appeared, in some on one arm, in others on both, which, after a few days, became gangrenous. Two patients were cured, four died. From the same source nine vials were filled with vaccine virus, the use of which caused no evil effects.—*Centralblatt*, March 13th; *Philadelphia Medical Times.*

Hypodermic Use of Quinine.—Good results continue to be obtained in India from the hypodermic injection of quinine in the treatment of malarious fevers, notwithstanding the difficulty experienced in inducing natives to submit to the operation. While in many parts of the world the practice is taken up with some amount of enthusiasm, we may here be permitted to state that as far back as 1863 Indian Army surgeons recorded their experiences of the procedure in our columns.—*Lancet*, May 22d.

Absence of Pancreas.—Entire absence of the pancreas was recently found in the *post-mortem* examination of M. de Morny, a well-known personage in Paris. Although complete transformation of this organ by fatty depositions, or as the result of inflammatory action, is not an extremely infrequent occurrence, its entire absence has been very seldom observed. —*Allge. Wien. med. Zeit.*, January 5, 1875.

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from May 14 *to June* 13, 1875.

Sloan, William J., Surgeon.—Announced as Medical Director of the Department. G. O. 29, Department of Dakota, May 4, 1875.

Hammond, J. F., Surgeon.—To report to the commanding general Military Division of the Atlantic, for duty as Attending Surgeon, relieving Surgeon Bell. S. O. 92, A. G. O., May 17, 1875.

Randolph, John F., Surgeon.—Relieved from duty at Camp Robinson and assigned to duty at Fort D. A. Russell, Wyoming Territory. S. O. 64, Department of the Platte, May 29, 1875.

Byrne, C. C., Surgeon.—Assigned to duty as Post-Surgeon at Fort Abraham Lincoln, D. T. S. O. 88, Department of Dakota, May 18, 1875.

Bache, Dallas, Surgeon.—Granted leave of absence for two months. S. O. 114, Military Division of the Atlantic, June 7, 1875.

Frantz, J. H., Surgeon.—Assigned to duty as Post-Surgeon at Fort Preble, M. E. S. O. 105, Military Division of the Atlantic, May 26, 1875.

Weeds, J. F., Surgeon.—Assigned to duty at Nashville, Tenn., as Post-Surgeon. S. O. 71, Department of the South, June 2, 1875.

Wolverton, W. D., Assistant Surgeon.—Assigned to duty at Fort Abercrombie, D. T. S. O. 87, Department of Dakota, May 15, 1875.

Knickerbocker, B., Assistant Surgeon.—Assigned to temporary duty at Fort Canby, W. T., relieving Assistant-Surgeon Brooke, and, upon assignment of another medical officer to duty there, to rejoin his proper station, Fort Vancouver, W. T. S. O. 69, Department of the Columbia, May 27, 1875.

Brooke, John, Assistant Surgeon.—Relieved from duty in Department of the Columbia, to proceed to Philadelphia, Pa., and, upon arrival, report by letter to the Surgeon-General. S. O. 92, C. S., A. G. O.

Kinsman, J. H., Assistant Surgeon.—Assigned to duty at Fort Ripley, Minn. S. O. 83, Department of Dakota, May 11, 1875.

Heizmann, C. L., Assistant Surgeon.—Leave of absence extended three months. S. O. 89, A. G. O., May 12, 1875.

Loring, L. Y., Assistant Surgeon.—Granted leave of absence for one month. S. O. 38, Department of Arizona, May 18, 1875.

Delany, Alfred, Assistant Surgeon.—Granted leave of absence for three months on Surgeon's certificate of disability. S. O. 116, A. G. O., June 11, 1875.

Steinmetz, William R., Assistant Surgeon.—Relieved from temporary duty at Fort McHenry, Md., to report to the President of the Army Medical Board, New York City, for examination for promotion, and, upon its completion, to the commanding general, Department of the Missouri, for assignment to duty. S. O. 92, C. S., A. G. O.

Munn, C. E., Assistant Surgeon.—Assigned to duty at Camp Robinson, Nebraska. S. O. 67, Department of the Platte, June 4, 1875.

Harvey, Ph. F., Assistant Surgeon.—When relieved by Surgeon Frantz, assigned to duty at Fort Independence, Mass. S. O. 105, C. S., Military Division of the Atlantic.

Hoff, John V. R., Assistant Surgeon.—Granted leave of absence for one month. S. O. 64, C. S., Department of the Platte.

Paulding, H. O., Assistant Surgeon.—Assigned to duty, Fort A. Lincoln, D. T. S. O. 78, Department of Dakota, May 6, 1875.

Adair, G. W., Assistant Surgeon.—Relieved from duty at Ringgold Barracks, and to proceed to Fort Duncan, Texas, reporting upon arrival to Lieutenant-Colonel Shafter for duty in the field. S. O. 106, Department of Texas, May 31, 1875.

Skinner, J. O., Assistant Surgeon.—Relieved from duty in Department of the Columbia, and to report in person to the commanding general, Department of the South, for assignment to duty. S. O. 111, A. G. O., June 4, 1875.

Hamilton, John B., Assistant Surgeon.—Assigned to duty at Fort Colville, W. T. S. O. 64, Department of the Columbia, May 19, 1875.

Obituary.

William Hey, F. R. C. S., etc., of Leeds, died May 10th. Mr. Hey belonged to a family renowned in the annals of surgery. His grandfather, father, and himself, held the office of surgeon to the General Infirmary of Leeds, for upward of a century, and a son of the deceased is at present consulting surgeon to that institution.

Dr. Foster Swift, a native of Geneva, N. Y., and for several years in practice in this city, died of phthisis, May 10th, in St. Croix, West Indies. Dr. Swift had already gained a prominent position in the profession, and had promise of a brilliant and successful career, when he was obliged to relinquish practice on account of failing health.

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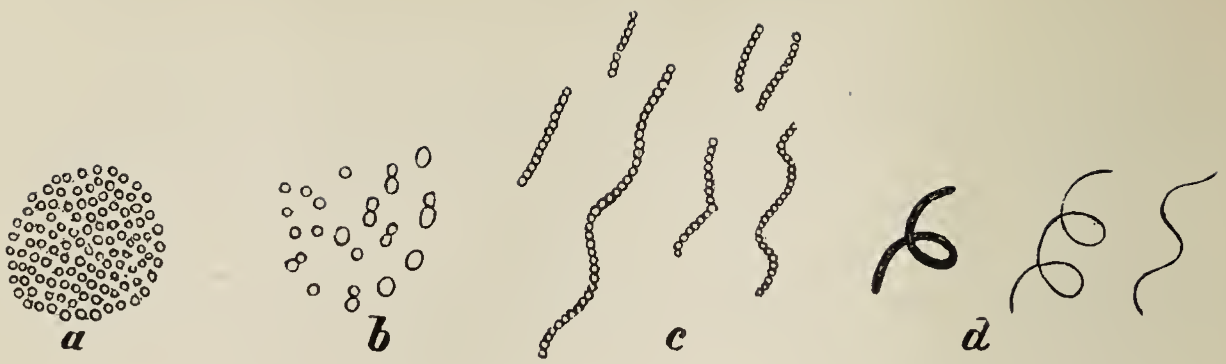

FIG. 1. Coccos: *a*, gliacoccos; *b*, free micrococcos; *c*, streptococcos (of Billroth), "vibrio;" *d*, spirillum, from putrefying organic solution.

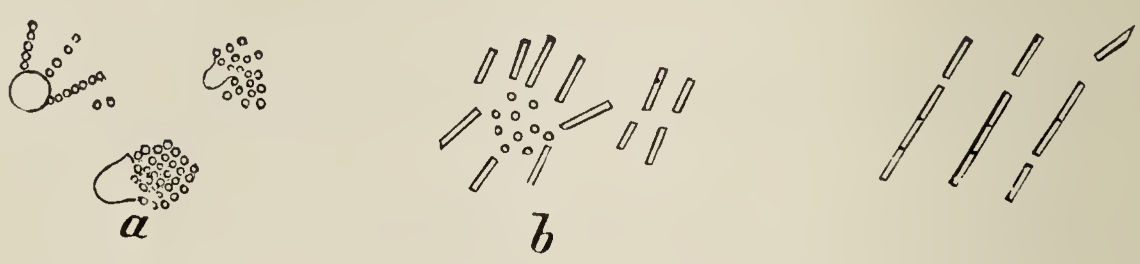

FIG. 2. *a*, Germinative spores opening; *b*, the contained coccos lengthening into bacteria; *c*, scission of bacteria and escape of one joint as actually observed (Billroth).

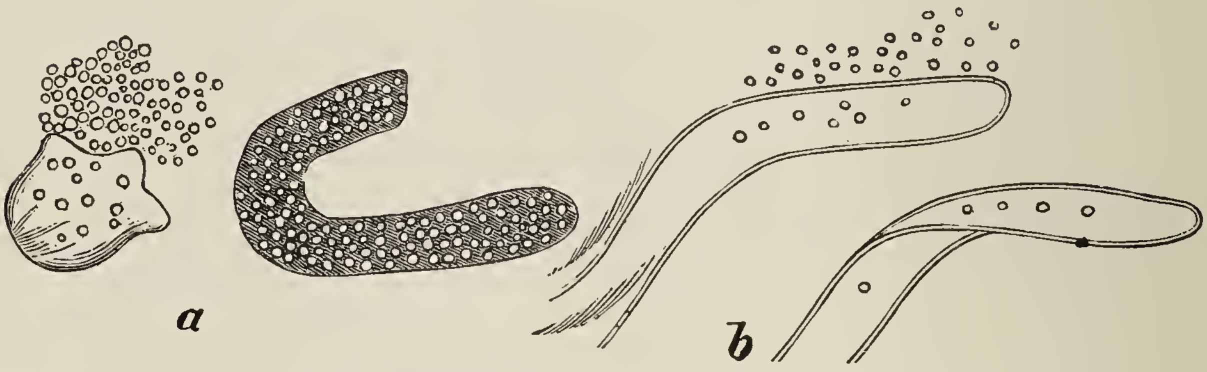

FIG. 3. Ascococcos: *a*, with thin wall, one is broken; *b*, husks (Billroth).

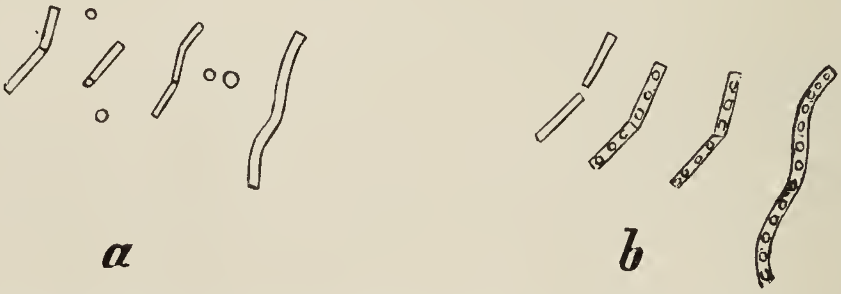

FIG. 4. *a*, Ordinary bacteria as seen with a power of about 200 diameters; *b*, the same after addition of tincture of fuchsine.

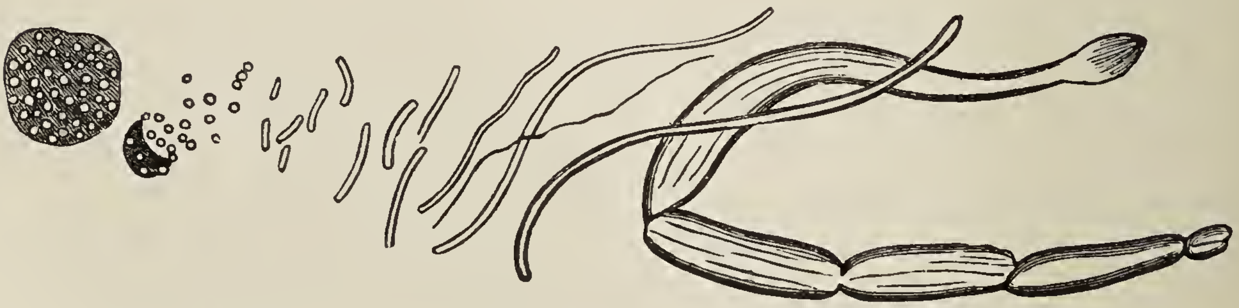

FIG. 5. Development of *Ascococcos parvus* (green mould), under a leaking faucet (Billroth).

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Original Communications.

Art. I.—*Bacteria and their Influence upon the Origin and Development of Septic Complications of Wounds.* By L. A. Stimson, M. D., New York.

> "Il s'agit ici de la pénétration de substances coagulables d'origine animale ou végétale en voie de putréfaction, de principes résultant de leur décomposition isomérique qui sont entrainés par la vapeur d'eau en suspension dans l'atmosphère. . . ."—Charles Robin, p. 239.

Living organisms, microscopical in size, of the simplest, most elementary nature, and moving freely in different liquids, have been known to observers for nearly two hundred years. Scientific classification and description were long impossible on account of the meagre facilities furnished by the microscopes of the last century, but during the last fifty years the means of observation have been so much improved, and the number of observers has been so great, that the advance in our knowledge of microscopical organisms compares favorably with that in other branches in science. This advance has been greatly stimulated by a tendency to see in low vegetable organisms the exciting cause of many diseases, and the supporters of the theory of "Animate Pathology" have increased, by their attempts to classify these organisms according to their supposed pathological qualities, a confusion in the nomenclature which has existed almost from the beginning, and is none the less to be regretted, although it is easily explained by the great difficulties in the way of accurate observation, study, and description.

To-day we are all familiar with the names *bacteria* and *vibrio*, and associate with them small microscopical bodies, round, oval, or rod-like and jointed, varying in length from 0.0005 mm. to 0.01 mm., and found especially in putrefying vegetable and animal infusions. The term *bacteria* is in general use in France and Germany to indicate all organisms of this kind; the term *vibrio* has performed the same service in England, but is now giving way to the former. When the words are used in a narrower sense, *bacteria* denotes stiff, rod-like bodies, single or jointed, montionless or endowed with an oscillating movement in place; while *vibrio* is applied to those which have an undulating, sinuous motion, and move rapidly across the field of the microscope. All these forms are now almost universally considered to be vegetables, and placed among the algæ, in the family *Oscillatoria.*[1]

The earliest recorded observations of any of the varieties were made in 1684, by Leeuwenhoek ("Anat. et Contemp.," p. 38, quoted by Dujardin). He found in his dejections during a slight illness microscopical bodies, which from his description were supposed by Ehrenberg and Dujardin to be identical with their "vibrio rugula" and "vibrio bacillus," two of the largest varieties. In Leeuwenhoek's "Select Works," translated by Samuel Hoole, London, 1800, a description and drawings are given of similar bodies found in the matter picked from between his teeth, and in vinegar. In the eighteenth century Müller classified the forms then known, and in 1838 Ehrenberg (Infusionsthierchen) made the first complete list. This was slightly modified three years later by Dujardin ("Histoire des Zoöphytes," 1841), and has since been constantly used as a standard of comparison, verification, and reference. As may be inferred from the titles of their works, both these authors supposed these organisms to be animals, and, therefore, did not include in their lists some well-known vegetable forms which we now place there, and which were described by Kützing ("Phycologia Generalis," 1843) among the algæ in the family *Palmellæ*, and have been recently placed by Bastian ("Beginnings of Life," 1872) among the amœbæ. I refer to the ascococcos of Billroth and some of the zooglœa forms of Cohn. The third classification was made by Cohn in 1873 ("Beiträge zur Biologie der Pflanzen," vol. ii.), and the fourth by Billroth in 1874 ("Ueber Coccobacteria Septica."

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[1] During the last few months, Robin says, the opinion has turned in favor of placing them among the mushrooms, of which they have to be considered a new, hitherto unclassified species. The arguments in favor of this view are the general lack of color in the spores and their growth in water. The cocci then would be the spores, and the bacteria the mycelium or the "filaments."

Ehrenberg's classification is as follows: He places all the forms in one family, *Vibrionida*, the fourth family of the class *Polygastrica*. He divides this family into five groups or species, and ten varieties:

Species I., *Bacterium:* Variety 1. B. triloculare; 2. B. enchelys; 3. B. punctum.

Species II., *Vibrio:* Variety 4. V. lineola; 5. V. tremulans; 6. V. subtilis; 7. V. rugula; 8. V. prolifer; 9. V. bacillus.

Species III., *Spirochæta:* Variety 10. S. plicatilis.

Species IV., *Spirillum:* Variety 11. S. tenue; 12. S. undula; 13. S. volutans.

Species V., *Spirodiscus:* Variety 14. S. fulvus.

He described the first species as a stiff-jointed rod, *in catenam filiformen rigidulam abiens*, the second as a flexible serpent-like chain, *anguis instar flexuosam*, the third as a flexible, the fourth as a stiff filiform spiral or tortuous chain, the fifth coiled on itself in the form of a disk. Those small round or oval forms now described as micrococcus he placed in the family of monads, *Monas*.

Dujardin cut out Species V. because it had been seen only once by Ehrenberg, during a journey into Siberia, and incompletely observed, added Species IV. to Species III., and reduced the number of varieties to ten, throwing out B. triloculare and B. enchelys, consolidating some and dividing up others.

Cohn groups all under one name, and divides as follows:

BACTERIA.—Tribus I., *Sphærobacteria* (Ball bacteria): Variety 1, Micrococcus.

Tribus II., *Microbacteria* (Rod bacteria): Variety 2, Bacterium, subdivided into B. termo and B. lineola.

Tribus III., *Desmobacteria* (Thread bacteria): Variety 3, Bacillus; Variety 4, Vibrio.

Tribus IV., *Spirobacteria* (Spiral bacteria): Variety 5, Spirillum (of Ehrenberg); Variety 6, Spirochæte (of Ehrenberg).

Billroth makes no claim to a complete botanical classification. He deals principally with the forms which are found in animal infusions, and in the body during disease or after death. But, while he does not attempt to describe all the varieties, he gives a complete history of those which he has observed, tracing the whole cycle of their development, and showing so close a genetic relationship between them that it seems probable future investigation will show the others to be included in it. He considers all the forms combinations of spherical and cylindrical bodies, representing only different periods of development. His nomenclature and classification being based upon this opinion, he groups all under the name *coccobacteria* (*κόκκος*, a berry, and *βακτηρία*, a little rod), and gives to the different forms names which are compounds of these two with words denoting the number, size, and arrangement of the component parts; micro-, meso-, and mega-, signifying small, medium, and large; mono- and diplo-, single and double; strepto-, in chains; glia- (*γλία*, glue), in groups; asco-, in bags; and petalo-, in plates. This classification is simple and clear, for each name has the great advantage of describing accurately the form to which it is applied.

A detailed description of all the varieties is not needed here. The terms *bacteria* and *vibrio* have been already explained; there remain two others, *bacteridia* (French, bactéridies; German, bacteridien) and *micrococcus*[1] or *microzyma*, which are constantly met with in recent pathological works. The former was applied by Davaine to long immovable forms of bacteria found by him in the blood of animals affected with anthrax; they belong in Variety 3, bacillus, of Cohn, while the latter is applied to the innumerable round or oval forms found in the tissues, secretions, or blood, of persons suffering from septic diseases, and in putrefying liquids.

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[1] *Micrococcus*, first employed by Hallier and adopted by Cohn, but with a different signification, makes the plural micrococci. Micrococcos, as used by Billroth, has no plural.

Natural History of Bacteria.—Bacteria are cells lacking chlorophyl, of spherical, oblong, or cylindrical form, which multiply by scission and vegetate either singly or in groups (Cohn, *loc. cit.*, page 136). They possess a cell-wall and colorless nitrogenized contents, protoplasm, which refracts the light more strongly than water, is contractile, and by its contractility occasions the movements of the plants. The existence of the cell-wall can be sometimes made out with the aid of high powers, and may be easily demonstrated by its resistance to caustic potash and ammonia (Cohn).

Both Billroth and Cohn testify that there is no genetic relationship between bacteria and any of the yeast-plants, including saccharomyces, the alcoholic ferment, or indeed any of the fungi and moulds. Billroth says (*loc. cit.*, page 49) that wherever any luxuriant yeast vegetation except oidium lactis is growing rapidly, the elements of coccobacteria septica do not flourish. Cohn claims that the resemblance between the alcoholic ferment and the torula form of sphærobacteria (mesococcos of Billroth) is merely an external one, and that all reliable observations controvert the opinion held by Hallier, Karsten, Huxley, and others, that these two belong in one and the same circle of development. As to the absence of genetic relationship between bacteria and fungi, his views are supported also by Burdon-Sanderson (Appendix to Thirteenth Report of Medical Officer of the Privy Council), and are founded partly on these two facts, that Pasteur's liquid exposed to the air developed mould (penicillium, etc.) and no bacteria, and when impregnated with a drop of water containing bacteria and placed in a tube corked with cotton it developed bacteria and no mould. They are also distinguished from the typical fungus by the absence of mycelium, and for this reason were classified by Naegeli as *schizomycetes*.

Development.—It is not necessary to discuss the possible origin of these organisms by spontaneous generation. Although that view is held by some, it is so manifestly incompatible with the observations of the authors above mentioned and the complete developmental history as described by Billroth, that it needs only to be mentioned here.

Billroth was the first to discover the nature of the germinative spores (Dauersporen), although they were described and figured by Cohn. These germinative spores, which are glistening, dark-bordered globules, develop in their interior masses of coccos which are set free by the bursting of the envelope, but are maintained in contact with it for some time by the presence of *glia*, a mucous or gelatinous substance which is supposed by Billroth to be secreted from the wall of the coccos, and by Cohn to be the result of the softening of that wall. This description can be easily verified ; I have found, in putrid animal infusions exposed to the air during three weeks in summer, these spores in all conditions, from those forming within bacteria, as will be described hereafter, to the empty shell. The coccos may multiply by lengthening and scission, or they may lengthen into bacteria and gradually free themselves from the enveloping glia by their own active motions, so that the external portion of the masses enveloping the germinative spores is seen to be formed almost entirely of bacteria in active motion. This scission ordinarily occurs in one direction only, the two pieces are held together by the glia, and each divides again and again, forming longer or shorter rosary-like chains, *streptococcos* (στρεπτός, chain). When the scission takes place in both directions we have the square sarcina forms. The bacteria also lengthen and divide transversely, forming the well-known jointed bacteria, *diplobacteria*, with which all are familiar.

The scission may take place so rapidly that each bacterium forms a streptococcos, and when the glia is very abundant the scission of the coccos goes on within it indefinitely, producing the large masses known as *zooglœa.* If the glia is very tenacious, it may form a thin or thick perfectly clear and transparent membrane about the mass, *ascococcos* (ἀσκός, a bag), which sometimes shows amœboid movements. After a time this membrane bursts, the coccos escape, and the empty husk is found at the bottom of the vessel. It may be mentioned here that Billroth was fortunate enough on two occasions to see with Hartnack's No. 15 immersion objective a micrococcos lengthen and divide, and the two parts separate from one another in the course of half an hour.

The final fate of all bacteria presents three varieties: 1. The plasma may leave the husk in the form of a finely-granular sterile mucus. 2. It may break up rapidly into micrococcos within the husk, expanding it considerably and forming a variety of ascococcos. 3. It may contract into one or more glistening, dark-outlined bodies which are the germinative spores with which the description began, and which, after a certain period of repose, may again germinate. *The vitality of the latter is not destroyed by freezing, boiling-heat, or by drying,* and these spores carried about in the air are undoubtedly the principal agents in the production of coccobacteria. Billroth had some which germinated after having been kept eight years. This is the only form which withstands drying; the coccos and bacteria do not, and this fact explains the failure of many impregnations with dried bacteria. The germinative spores, having fallen to the bottom of the liquid, were not included in the portions taken for the experiments.

Motions.—The isolated coccos possess only a motion which cannot be distinguished from the common molecular movement of very small, inert portions of matter, the so-called Brownian movement. Tiegel says (*Virchow's Archiv*, July, 1874) that, if the liquid in which they are contained is evaporated by a moderate heat and then fresh liquid added, they do not regain their motion, and one or two fine granules appear in their interior. When, however, they remain united in chains (streptococcos), they appear to have a sinuous, serpent-like motion which carries them, sometimes with great rapidity, across the field of the microscope. This undulatory motion is denied by Cohn, who considers its appearance due to a real rotary motion about the long axis. This opinion is certainly correct in the case of the larger spiral forms, but I have been unable to verify it in the smaller, straighter forms, say 0.003 mm. in length, whose extreme tenuity makes their examination very difficult and uncertain. Progression is made in either direction, and the large spiral ones often move forward and backward across the field almost with the regularity of a pendulum; sometimes one end attaches itself to the covering-glass or to some large object in the water, and the other swings slowly backward and forward, or the whole revolves rapidly about its long axis without change of place. The same motions are observed in the microbacteria chains, but the larger ones are generally motionless, and the isolated bacteria show only an oscillatory motion without change of place. No locomotory or motion-producing organ has been discovered except upon one of the spiral forms, Spirillum volutans, on each end of which Cohn found a fine, whip-like thread. The motions seem to be dependent upon the fluidity of the medium and the presence of oxygen, and are much hindered by the glia; they persist at a temperature as low as 35°, grow slow at 130°, and cease at 140° Fahr. (Billroth).

Nourishment.—For their nourishment bacteria need carbon, which they can assimilate from any carbon compound (except carbonic acid), nitrogen, which they can take from ammonia, urea, and probably also from nitric acid, and certain of the elements of the ashes of ordinary yeast, of which the most desirable are phosphate of potash, sulphate of magnesia, and nitrate of lime or chloride of calcium (Cohn). All the experimental liquids in ordinary use are composed in accordance with this. Pasteur's liquid has been found to be better fitted for the nourishment of bacteria when it contains no sugar.[1] Bacteria resemble green plants in this, that they assimilate the nitrogen contained in their cells in the form of ammonia compounds, which animals cannot do; on the other hand, they differ from green plants and resemble animals in this, that they cannot take carbon from carbonic acid, but only from

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[1] Cohn used the following modification of Pasteur's: Distilled water, 100 parts; nitrate of ammonia, 1 part; ash-elements, about 1 part. He recommends also Mayer's normal solution of nutritive mineral salts:

Phosphate of potash	0.1 gramme.
Crystallized sulphate of magnesia . .	0.1 "
Tribasic phosphate of chalk . . .	0.01 "
Distilled water	20 cub. ctms.

organic compounds of carbon, especially the hydro-carbons and their derivatives (Cohn).

Functions.—Bacteria are not parasites; they do not live upon the materials intended for the nourishment of the tissues in which they are found, and cause the death of these tissues by starvation, but they are saprophytes, and probably live upon some of the elements of the substance itself by the withdrawal of which new chemical combinations of the others are caused. Putrefaction is a correlative phenomenon of life, because it occurs only when a microscopical vegetable organism nourishes itself and multiplies at the expense of a part of the putrescible substance. This organism is the bacterium, or at least some of its forms or varieties, for many authors agree with Cohn that putridity is excited only by Bacterium termo, a form which Cohn describes as having a length of 0.002–0.003 mm., found often in pairs and possessing a tremulous motion; it is the microbacterium of Billroth. Cohn (*loc. cit.*, pages 169, 170) says they multiply as long as the putrid process lasts, and disappear as soon as it ceases; that he is convinced B. termo is the ferment of putrefaction, as yeast is the ferment of alcoholic fermentation, and that no putrefaction can begin without it, or progress without its multiplication. Other bacteria may aid in the process, but their *rôle* is secondary, and B. termo is the primary exciter of putrefaction, *the only saprogenic ferment.* Organic nitrogenized substances never putrefy by themselves, but only when they are decomposed by the vitality and multiplication of bacteria. "This is not only supported by microscopical researches, which show that B. termo is constant in putrefaction, but comes with convincing certainty from an unprejudiced consideration of the innumerable researches into *generatio æquivoca*, especially those of the last few years. These show that putrefaction of an organic nitrogenized substance cannot occur if bacteria are kept away from it, after those that were already present have been killed; that it begins as soon as even the smallest number of bacteria are added, and advances at the same rate as that in which they increase, and stops when exposed to any one of the influences which prevent the multiplication of, or

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[1] Saprophyte, σαπρὸς, putrid, and φυτὸν, plant.

kill, bacteria. On the other hand, bacteria multiply only as long as they find material capable of putrefaction."[1] Cohn carries this physiological distinction still further, and divides his "ball-bacteria," micrococcus, in which no morphological differences can be seen, into three groups, according to their supposed power to produce pigment, fermentation, or disease, and again subdivides the third group according to the different diseases in which the micrococcus is found (M. vaccinæ, M. diphtheriticus, M. septicus). That these plants do not possess in themselves the power of causing disease, but that, at the most, they act only as carriers of contagion, and therefore that the above classification is unjustifiable, will be shown in the second part of this article. The coccobacteria then have but three well-marked functions: 1. Some of them produce certain pigments (Cohn); 2. Some cause special fermentation (Pasteur); 3. Some excite putrefaction. They may also aid mechanically in the transport of various contagions, and, by their presence and rapid multiplication in the body during the existence of an abnormal condition of the blood, juices, or tissues, may mechanically impede normal physiological processes, and perhaps render the increase of an already existing poison more rapid and fatal.

Distribution.—Bacteria exist in one form or another in all water (Cohn), most animal tissues (Billroth), and in the air. In the latter they are found only in the form of germinative spores, the other forms not being able to support the absence of moisture. Their presence in the healthy living body has been often affirmed and denied, but has recently been demonstrated beyond cavil by Billroth, and still more recently by Tiegel (*Virchow's Archiv*, vol. lx., July, 1874). Burdon-Sanderson's denial of their presence (quoted by Cohn) was based upon the fact that the addition of small portions of fresh meat and blood from animals in full health did not cause cloudiness of Pasteur's liquid; Rindfleisch (*Virchow's Archiv*, vol. liv.) got the same result and drew the same conclusion, having used rain-water in place of Pasteur's liquid. Billroth denies the correctness of the inference, because it is now well known that the strongly acid, sugary Pasteur's liquid is not favorable for the development of bacteria, particularly of those found in the alkaline blood, and that as all liquids are not favorable for the growth of all bacteria, and as the latter are not universally present in forms capable of further development, Rindfleisch's single experiment cannot weigh against the very numerous and carefully-conducted ones which have demonstrated the presence of these organisms.

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[1] It may be proper to mention that, while this (Pasteur's) theory of fermentation or putrefaction is generally accepted to-day, the followers of Liebig deny its entire correctness, and maintain that "certain non-living albuminoid substances are also capable of acting as ferments" (Bastian, "Beginnings of Life," vol. i., p. 405). Billroth attaches much importance to a saying of Hoppe-Seyler: "Fermentation is possible without organisms, but not definite fermentations without definite organisms."

In the air spores are present, but apparently so few in number, and so light, that they do not alter the artificial nutritive liquids, and only very slowly infusions of animal and vegetable tissues (Cohn). All observers agree that they are found at times in all kinds of water. Rindfleisch thinks they are sometimes absent from rain-water; but Cohn found them in the moisture condensed upon the interior of a bell-glass placed over an open dish of water. Of course, they may have been deposited from the air, but the question of their origin does not affect the fact of their universal presence. Recent investigations have shown them to exist in large quantities on the walls of old hospitals (Nepveu, in *Gazette Médicale*, June 27, 1874). The spores, which float in the air, or are deposited upon exposed surfaces, remain inert and innocuous until the conditions necessary to their development are supplied, among which moisture is the chief. Cohn maintains that 140° Fahr. is sufficient to kill bacteria and bacteria-spores, and that when any are found to have survived that temperature, or even 212°, it is probably because the liquid containing them has been unevenly heated. Billroth, on the other hand, says that the germinative spore can withstand more than 212° Fahr. Both agree that all the forms withstand very low degrees of temperature (even zero Fahr., Cohn), but that at the freezing-point, and probably even at a somewhat higher temperature, they lose their power of motion and multiplication, and consequently their power of causing fermentation and decomposition, but regain it as soon as the temperature is raised.

To recapitulate: Bacteria are microscopical vegetable organisms of two main varieties: 1. Round or oval cells 0.0005–0.0010 mm. in diameter, single or arranged in lines or groups (sphærobacteria, micrococcus, Cohn: micrococcos, streptococcos, Billroth). 2. Cylindrical cells 0.002–0.003 mm. long, single, or arranged in lines (bacteria of both authors). There is no genetic relationship between them and ordinary mould and fungus. They are found in the air, water, and most animal and vegetable tissues. They are saprophytes, not parasites, and are unable in themselves to cause any of the infectious diseases.

What influence have bacteria upon the origin and development of septic complications of wounds?

The frequency and gravity of these complications have made their etiology, pathology, and treatment, one of the most important and interesting of all surgical problems, and the scanty success that has hitherto attended all prophylactic and remedial measures shows that the problem, in part at least, is still unsolved. Their cause was first supposed to lie in the absorption of the pus of the wound through the open mouths of the severed vessels; then in poisoning of the blood by pus formed in the interior of the vessels by phlebitis (Hunter), or by thrombosis (Darcet, 1842, popularized ten or fifteen years later by Virchow); then in the absorption of putrid matter from the surface of the wound (Gosselin);[1] in the formation of a virus in the secretions of the wound and its penetration into the circulation; and, finally, in the introduction of bacteria.

The poisonous effects of putrid matter have long been known; in 1815 Orfila (quoted by Piorry) killed dogs by inoculation of putrid blood, bile, and fragments of tissue; and in 1827 Hamont (quoted by Coze and Feltz) killed a horse by means of injections of putrid pus taken from a gangrenous abscess, and a second horse with blood taken from the first—the first dying on the fourth, the second on the fifth, day. Piorry, in an article on typhohémie, written probably in 1835, gives a full and accurate account of those symptoms to which he afterward gave the name septicæmia, by which they are now known. He ascribed the disease solely to the effects of the absorption of putrid matter through the lungs, skin, intestine, or the surface of a wound, but did not attempt to discover the cause of its virulence. Panum (*Virchow's Archiv*, vol. xxv., 1862, quoting from an article of his own published April, 1856) speaks of a non-volatile septic poison, which is insoluble in absolute alcohol, soluble in water, and not destroyed by prolonged boiling.—Robin ("Dictionnaire de Médecine") considered the virulence due to a catalytic effect produced upon the humors and tissues of the body by contact with a substance in which putrefaction had brought about an isomeric change in the fundamental "immediate principle," and he said ("Comptes Rendus de la Société de Biologie," 1863), "Putridity is not virulence; on the contrary, when it has advanced to a certain degree, it destroys virulence," a statement which is universally accepted to-day.—Bergmann ("Das putride Gift," 1868) said: "The toxic action of putrid organic substances is not due to inferior organisms, but to a diffusible nitrogenized toxic substance which resists alcohol, ether, and boiling heat, and is formed during putrefaction."

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[1] The question of priority in discovery is always a difficult one to settle. The works which have popularized our knowledge of septicæmia have been largely German, but it seems to me clear that the possibility of absorption by granulating wounds and the marrow of bones was first demonstrated by Gosselin in 1855 ("Mémoires de la Société de Chirurgie," tome v., p. 147), and that he was the first to publish the theory that the *ensemble* of symptoms now known as septicæmia was due to the penetration into the body by such absorption of putrid matter.

But the believers in the importance of bacteria were not idle. Mayrhofer ("Jahrbücher der Gesellschaft der Aertze in Wien," 1863), claimed that puerperal fever was due to low organisms which he called vibriones. He had observed that they appeared first in the lochia of healthy lying-in women on the fifth day after delivery, and in small quantities; but in those sick with puerperal fever they appeared immediately after delivery, and in much larger quantities. He then injected a putrid infusion of meat into the uterus of a rabbit soon after delivery, causing its death from endometritis with septicæmic symptoms. Leplat and Jaillard ("Comptes Rendus de l'Académie des Sciences," vol. lix., p. 250, 1864) made nine inoculations with putrefying animal and vegetable infusions; eight of these caused no serious symptoms. They concluded that "vibriones coming from any substance whatever cause no accidents in the animals into the blood of which they have been introduced, unless they should be accompanied by virulent agents, which latter are alone responsible for any un fortunate results which may ensue." In 1865 Coze and Feltz published a series of observations (*Gazette Médicale de Strasbourg*), which they claimed proved that the blood of animals inoculated with putrefying liquids is itself infectious; that its red corpuscles are profoundly altered, and that it contains bacteria; also, that successive inoculations of different individuals of the same kind—that is, from No. 1 to No. 2, from No. 2 to No. 3, etc.—become rapidly fatal; that the infectious ferment gains in force by its passage through the organism. In 1872 they published a book in which the results of these and later experiments were set forth. They claimed that the figured elements which they found in the blood were the active efficient agents in the poisoning. They called these elements infusoria, and said they appeared to belong rather to the genus Bacterium than Vibrio, and to be the B. punctum and B. catenula of Dujardin; they were probably the micrococcos and micro-bacteria of Billroth. The authors agreed with Pasteur that there were two phases of putrefaction, of which only the first would cause poisonous symptoms. This is another way of stating the fact which has been already mentioned, that putrefaction destroys virulence. They were also the first to find micrococcus during life in the blood of typhoid patients.

In the mean time Davaine had been studying anthrax in animals (malignant pustule in man), and had discovered *bacteridia*, which he claimed to be the toxic principle of that disease. In 1869 he had repeated and confirmed the earlier experiments of Coze and Feltz (his studies were interrupted by the war in 1870–'71), but on September 17, 1872, he read before the Académie de Médecine in Paris a report of three series of inoculations with putrid blood. The first series showed that inoculation with several drops was fatal in less than half of the cases; those with one drop of blood putrefied in the open air rarely killed, and that sometimes ten or fifteen drops were necessary. The second series comprised successive inoculations of blood from one animal to the next; it showed that $\frac{1}{100}$ to $\frac{1}{10}$ of a drop was sufficient to kill the fifth, $\frac{1}{20,000}$ to $\frac{1}{10,000}$ would kill the tenth, while for the twenty-fifth the *one-ten trillionth* part of a drop was sufficient. The third series showed that the septicæmic virus is destroyed by putrefaction. We must pass rapidly over the discussion that followed. These experiments, received with much distrust at first, were substantially verified by many observers, and the conclusions finally accepted by most were: 1. That the susceptibility to the virus varies much in different animals, rabbits being the most susceptible. 2. Putrid blood loses its virulence as it gets older. 3. That septicæmia is a putrefaction taking place in the blood of an animal, and induced by bacteria and vibriones (*Bulletin de l'Académie de Médecine*, October 8, 1872). 4. That blood putrefied outside of the body is much less poisonous than that of an individual whose death has been caused by, or who is still suffering from, septicæmia, typhoid fever, or gangrene of the lung. 5. That the one-millionth part of a drop of such blood injected into the cellular tissue of a rabbit will cause the death of the animal in less than twenty-four hours. 6. That the poisonous quality of the blood is entirely due to the presence of bacteria. Most of the inoculations were made with blood taken from the cadaver several hours after death, and containing multitudes of bacteria. Vulpian denied that inoculations with blood taken from patients affected with typhoid fever would cause death by septicæmia, and claimed that inoculations with blood taken from the cadaver must be considered only as inoculations with putrid blood. He failed to find in blood taken during life more than a few scattered granulations (micrococcus) and bacteria. He also claimed that septicæmia produced experimentally differed from that observed in man; that the former appeared to be "a sort of internal parasitic affection, which certainly was not the case with typhoid septicæmia in man, in which the presence of inferior organisms in the blood was a variable circumstance, and unquestionably only accessory." In order to mark this distinction, he suggested for the former the name *bacterémie* (*Bulletin de l'Académie de Médecine*, second series, vol. ii., p. 420).

On April 15, 1873, Onimus reported a series of experiments, conducted under the direction of Prof. Robin, by which he claimed to have demonstrated: 1. "That virulent blood can preserve its virulence in spite of the disappearance of vibrios and bacteria. 2. That blood may contain these inferior organisms, and still not be virulent; consequently, that the virus of putrid infection is not an organized ferment, but an albuminoid substance. These conclusions were denied by Davaine and Pasteur on the ground that the absence of bacteria from the material used for the inoculations was only apparent; that, although none were visible at the time, they existed nevertheless in an invisible stage of development.

All the original opponents of Davaine had now given their adhesion to his views, and this report of Onimus made little or no impression, opposed as it was by the great authority of Pasteur. The question, which had been discussed at every meeting of the Academy since September, 1872, now received much less attention; an occasional report upon it was made by those who had been specially identified with it, and by the majority it was considered to be definitively settled. In the mean time the discussions had excited a great deal of interest in all countries, and the experiments were repeated in many of the laboratories of England and Germany; an occasional article showed that the importance claimed for the bacteria was not universally admitted; and, since the publication of Billroth's work in 1874, the weight of testimony has been against them. The results of experimental pathology were subjected to the light of clinical observation, and extensive investigations were made to determine the presence or absence of bacteria in the liquids and tissues of the body during the different stages of septic diseases and after death. Of these none were more thorough than those conducted by Billroth. He found, in two hundred autopsies of all diseases, cocco-bacteria present in eighty-seven in the pericardial liquid. The longer the interval between the time of death and the examination, and the higher the temperature of the air, the more certainly were these organisms found. Although they are found in abundance during life on many of the mucous membranes, it is probable that they make their way into the tissues and circulation only through the lungs, and that they remain, especially in the blood, in the form of germs capable of development. This view is opposed by Burdon-Sanderson, and Rindfleisch, and supported by Heusen (*Archiv für microscopische Anatomie*, vol. iii.), and more recently by Klebs. It is probable that the organisms also make their way rapidly after death from the stomach and intestines, and from open wounds into the tissues.

Lewis and Cunningham (Calcutta, 1874) made seventy-three examinations of the blood, and forty-three examinations of the mesenteric glands of dogs killed by various means, and state that the only feature common to the cases in which bacteria were found was, that a certain period of time had elapsed after death before the examination was made. The shortest was five and one-half hours. In an examination of blood taken from a dog in a state of great depression, and just before his death from the effects of intense inflammation excited by the injection, not of a putrefying organic liquid, but of ammonia into the peritoneal cavity, large quantities of bacteria were found.

Offensive rancid pus from wounds contains micrococcos chiefly, and yet the quantity is not proportionate to the intensity of the odor; and, further, as great quantities of micrococcos can be present without the coexistence of any fever, their appearance in the pus of a wound has no immediate connection with the unfavorable course of a traumatic inflammation, or with pyæmia; the pus from cavities communicating with the external air almost always contains micrococcos, and yet the patients may remain perfectly free from fever, and make good recoveries.

Billroth relates three cases of *acute closed abscesses*, which may have communicated at some earlier period with the air. The first was an abscess of the epitrochlear gland following a wound of the fingers; the pus was sweet, and contained masses of micrococcos. The second was an abscess of the scrotum following lithotomy, which contained a bloody, brown, badly-smelling pus, and no micrococcos; but he thinks the latter may have existed previously, and perished from lack of oxygen. The third was a case of osteomyelitis of the upper end of the tibia; the pus contained no coccos; but pus which formed subsequently in the knee-joint, and was removed by aspiration, was full of streptococcos, and was odorless; the fever ran high, and death followed amputation. Examination showed no organisms in the blood or inguinal glands, but the stump was infiltrated with pus containing many free micrococcos.

Inodorous, thick pus from several cases of *completely closed acute abscesses* contained no organisms, and in one case of marked septic poisoning, with œdematous phlegmon of the thigh, following a bruise of the skin, the inodorous liquid removed by incision contained no trace of coccobacteria. This case shows that the most dangerous and extensive phlegmon with septic poisoning can occur without the aid of this vegetation. An inodorous, half-purulent extravasation of blood opened fourteen days after the accident, on account of inflammation of the parts, a metastatic abscess of the thyroid gland, and very fetid pus from a subcutaneous abscess caused by passive motion of a stiff elbow, all contained micro- and streptococcos.

Pus, freshly taken from *cold abscesses* caused by injury to bone or joint, was never found to contain coccobacteria. In a case of dissection wound followed by lymphangitis, the pus contained no coccos.[1]

In some cases of *erysipelas* he found coccobacteria in the bullæ, in others he found none.

In *ulcerative diphtheria of wounds* and *hospital gangrene*, he found large quantities of micro- and streptococcos.

Vogt (*Centralblatt*, No. 44, 1872) found crowds of micrococcos in blood taken from the skin of a pyæmic patient near the point at which amputation had been performed, and also in pus from a metastatic abscess in the wrist, while very few were found in blood taken from other parts of the same patient. Injections of the first blood into the back of a rabbit caused a large abscess, which was found to contain large quantities of micrococcos, as did also the neighboring muscles.

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[1] Dr. Bergeron presented a paper to the Académie des Sciences, the 15th of February, 1875, which contained the result of the examination of the pus of eighteen closed abscesses. He found bacteria in all the hot abscesses of adults, and none in cold abscesses, or in hot ones of patients below the age of twenty-two years. Their presence was not accompanied by any serious symptoms. In a second series of examinations, not yet published, bacteria were found in the pus of a hot abscess of a boy about sixteen years old, and were absent in one or two abscesses of adults.

Wolff (*Virchow's Archiv*, December, 1873) claims that there are cases of acute pyæmia and septicæmia in which the presence of bacteria in the blood cannot be proved microscopically or experimentally, and yet the pus of the wound contains them, and inoculation with it is fatal.

In the body of a healthy animal, the development of coccobacteria is very difficult if not impossible. The active movement of the blood hinders it greatly, and the vital energy of the tissues is a very serious obstacle, because the normal exchange of nutritive material is so energetic that these plants cannot check it and absorb the nourishment needed for their own growth. This is an important fact, for, according to all analogy, only by active vegetation of this plant could an alteration of the blood occur which would lead to its death. Fresh blood and pus are not favorable to the development of coccobacteria even under the most favorable conditions, and when masses of micrococcos are found in the tissues, and in pus, it is certain that some change has taken place to render the medium suitable for their nourishment; the moribund dog of Lewis and Cunningham, already mentioned, is a case in point. This change is thought by many to be due to the supply to the pus of certain materials, products of unhealthy inflammation, from the neighboring inflamed tissues. If this neighboring inflammation ceases, if the pus becomes surrounded by healthy granulations, and can flow freely away, then its alteration ceases, and so too does the vegetation of micrococcos; but if this barrier is not formed, if the inflammation continues, the alteration of the pus and the rapid vegetation of the plant react upon and increase the original inflammation, thus forming a vicious circle, which may rapidly produce the most fatal results. Experiment shows that decomposition of fresh pus rapidly follows the addition of a drop that has been already affected. The same effect is produced by the addition of a drop of a putrefying infusion of meat, or of the serum of a wound, or of urine, and this shows that the poison is produced as well outside of the body as in inflamed tissues. If the pus of an open wound has been infected from the outside, its prompt removal and extreme cleanliness of the wound for a few days may restore it to its healthy condition, and the principal danger does not lie in the ordinary spores which may fall upon the wound from the air, for they require a certain time for their development, and do not act at once as ferments, but it does lie in those which have taken up some of this virus, and which, aided probably by it, act at once as a ferment upon any pus with which they come into contact. To this material Billroth gives the name phlogistic zymoid (*ζύμη*, ferment material), because it is produced by inflammation, and is capable of reproducing it in turn, and while it is not a ferment in the sense in which yeast is one, it is ferment like, *zymoid.*

A suppurating wound, then, may be poisoned by the introduction of foreign matter from without, decomposition of the pus is caused, and if the latter is not promptly removed, and the wound cleansed so as to prevent further decomposition, the granulations are destroyed and a special inflammatory process is set up in the neighboring tissue. Or this special inflammatory process may be the result of mechanical violence due to improperly-arranged bandages, or irritation and crushing of the granulations; the phlogistic material is formed and mixed with the pus, insuring its decomposition, the growth of coccobacteria and septic poisoning. In either case the presence and development of coccobacteria are not necessary to the process, and the most dangerous phlegmons may occur without the slightest trace of these organisms. Billroth gives a case in point which has been already referred to:

"A man, fifty-four years old, irritated the skin over his shin by friction against the hard edge of his boot; he continued to work for ten days, and was then compelled to take to his bed with high fever and chills; four days afterward he was brought to the hospital, apparently in collapse, with all the symptoms of intense septicæmia. A superficial scab was found on the shin of the right leg, around it the skin normal, but on the knee and entire outer half of the thigh it was very red and swollen, doughy to the touch, and without distinct fluctuation. After the patient had taken some brandy, he rallied sufficiently to allow an incision to be made along the outer part of the thigh and front of the knee. The serum mixed with pus which escaped was entirely odorless, and showed no trace of micrococcus. The patient did well until the twelfth day, when he was attacked by pneumonia and died."

Acute grave inflammation can be excited by many causes, of which crushing is the type, and this effect is produced not by putrefaction of the parts which are entirely killed, but by the chemical changes in those which are half killed, in which the circulation still goes on. A break in the skin increases the danger. Similarly, the most dangerous freezing is that which does not go on to absolute death of the tissues; and partial obstruction of the circulation, as effected by the stitches in a wound, is far more dangerous than ligature of an artery.

So far as we know, the products of all acute inflammations are infectious in certain stages; this virulence is also shared by certain substances formed by putrefaction, but no one has yet been able to separate the poison or to describe it fully. Most writers agree that it is not destroyed by boiling heat, a fact which seems to be an additional proof that it cannot be due to the presence of vegetable organisms. Panum (*Virchow's Archiv*, July, 1874, page 348) says, "Putrid poison is formed in putrefying tissues and liquids, is a peculiar chemical substance, not composed of albuminous matter, not destroyed by heat, is soluble in water, and can be thence precipitated by means of alcohol." He thinks it is perhaps produced by the growth of bacteria, especially B. termo. He also testifies to a fact which has been already stated, that putrefactive bacteria which may make their way into the circulation of healthy men cannot continue to exist there, and can multiply only after a certain grade of decomposition after death has been reached, the appearance of which is greatly hastened by the presence of putrid poison. "But," he continues, "putrid poison with or without bacteria can make its way, especially from wounds, into the blood during life, and cause the ordinary symptoms of putrid infection, septicæmia; and there is a certain specifically pathogenic fungus, *Micro-*

sporon septicum of Klebs, which differs from B. termo, and, when carried by the air or intentionally inoculated, is developed especially in the blood and pus, probably under the predisposing influence of the putrid poison, and seems to be able to multiply very rapidly in the blood and tissues of living bodies, and cause fever, suppuration, and inflammation, in part by the production of a special poison, and in part mechanically."

There is but little difference between this description and Billroth's, for "putrid poison," "phlogistic zymoid" must be substituted, and for "microsporon septicum," "micrococcus." Both consider the development of the plant made possible only by the presence of a predisposing poison, and both think it may be carried by the air, but, where Panum's theory requires the coöperation of two processes, Billroth's requires only one; for, according to the latter, the spore may take up and "fix" the poison, so that when floating in the air it carries in itself, though not of itself, the means to render the soil upon which it falls suitable for its future growth. One of Panum's experiments deserves mention. He made a watery extract of the residue left after alcoholic extraction of the dried residue of a putrid liquid. Inoculation of a dog with this watery extract caused its death in three hours with acutest symptoms of septicæmia. Injections of the alcoholic extract had no effect (*loc. cit.*, p. 335). These experiments supplement Hiller's, and together they confirm those of Onimus which have been already mentioned. Hiller (*Centralblatt*, February, 1874) made thirty-two injections with putrid matter subjected to various processes designed to remove from it every thing except the bacteria, and got no results beyond finding masses of dead bacteria in the skin at the place of injection. Other portions of the injected liquid caused active vegetation in Pasteur's liquid. He concluded consequently that bacteria have no phlogogenic or pyrogenic influence, and that their development is possible only in material that is dead or incapable of regular exchange, and finally that septicæmia is due not to bacteria but to the absorption of the products o inflammation and decay.

The demonstration of the existence of a virus, far from solving the question of the etiology of septicæmia, only removes it a step backward. We have yet to learn the conditions of the formation of this virus both in putrefying matter and in the living, although injured, body. This is a question which, strictly speaking, is not included in the subject of this article, and can, therefore, receive only a passing mention. Pasteur's brilliant studies of fermentation, of which putrefaction is a variety, have shown that the process cannot go on without the aid of living organisms, among which the cells of vegetables and even of animals are to be classed. For instance, during the ripening of fruits alcohol is formed within them and carbonic acid is given off in considerable quantities as a result of the transformation of the sugar. In this case the ordinary alcoholic ferment is not present, and its part is performed by the cells of the fruit. There is reason to believe that a similar function belongs to the cells of animal tissues, that all life is a fermentation,[1] and that for the vague term "vitality" or "vital action," we have to substitute another which conveys the idea of a definite chemical process.

It is easy to comprehend that among the products of putrefaction there may be one which is very deleterious to the living body when the latter has been inoculated with it, and, on the other hand, that the portions of an organism which have been injured and are living under altered conditions, such as constant pressure, mechanical or chemical irritation, or insufficient supply of blood, may cease to functionate normally and may give rise to abnormal products which are as deadly to the parent organism as is the sting of a scorpion when plunged into its own body.

This is a question for the physiologists and pathologists of the future. At present it is but an hypothesis, a "working hypothesis," a convenient form for expressing the relations between certain well-established processes, and is not yet a fact definitively acquired by science; but, as it is now under investigation by its author, perhaps the most successful experimenter of the age, we have a right to expect its speedy verification or abandonment.

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[1] M. POGGIALE: ". . . si la définition de M. Pasteur devait comprehendre les cellules végétales et, ainsi qu'il nous l'a annoncé, les cellules animales, la vie dans les végétaux, comme dans les animaux, ne serait qu'une fermentation universelle."

M. PASTEUR: "Ce serait bien possible."

Bulletin de l'Académie de Médecine, 1875, p. 283.

The question at once arises, Why does not this acute specific inflammation spread rapidly in all cases over the whole body? Its course in the tissues is often limited by fasciæ; this is due probably to the slight diffusibility of the poison, and to the fact that it is diluted by the serous exudations and carried by them to the surface, or if absorbed it is absorbed by the lymphatics, so that the inflammation follows the course of these vessels. When this specific decomposition of pus has taken place on a wound covered with healthy granulations, the latter form a very strong barrier against infection of the underlying tissues, and time is thus afforded for proper cleansing of the wound and arrest of the process. It cannot be admitted that the leucocytes have any share in inoculation or spread of the contagion except so far as they may be able to take up and "fix" the poison, as do the vegetable organisms; upon this point nothing is known beyond the fact that occasionally leucocytes are found which seem to inclose bacteria or coccos, although the testimony of the microscope is not conclusive when its highest powers have to be employed. Of course, it is theoretically possible that the inclosed or adherent plants may have previously been in contact with and have absorbed the poison, but this is an unnecessary refinement, since the spread of the process can be easily accounted for without the aid of the pus-corpuscles.

As pus is not affected morphologically by the presence of the virus, and may have all the appearances of pus that is *bonum et laudabile*, and does not necessarily have an offensive odor, we can account for the difference of the results obtained by experimenters; and, further, as the presence of the virus in stagnant pus favors the free development of micrococcos, and is itself in turn increased thereby, we must admit the correctness to a certain extent of the observation of Klebs and others, that pus containing micrococcos is especially infectious.

In the other specific acute inflammations—diphtheria, erysipelas, hospital gangrene—this influence of the micrococcos does not differ from that which it possesses in the acute phlegmon which we have described. Its appearance is always preceded by the characteristic lesion of the affection; in the diphtheritic affection of a wound, for example, the borders become hard and infiltrated with coagulated fibrine before the appearance of more than a few isolated micrococcos in the secretions; in erysipelas, as has been already mentioned, they are sometimes absent and sometimes present in the serum of the bullæ, and this affection certainly is not dependent upon the presence of vegetable organisms; in phagedenic or hospital gangrene a stiff fibrinous infiltration always precedes the ulceration, and, while the micrococcos is very abundant on the surface, it penetrates only to a very slight depth; in phlebitis, the inflammation begins in the outer coat of the vessel, and, after the latter has become hard and cord-like to the touch, it still remains pervious—coccobacteria have evidently nothing to do with this process; and, lastly, they are almost always absent in thrombi and small metastatic abscesses.

To conclude, the argument may be summarized as follows: Septicæmia is the name given to an adynamic condition of the organism caused by a certain alteration of the blood. This alteration is not due to a parasitic influence exerted by the rapid growth of coccobacteria, because all observations show that this plant is present in the blood of the living animal only in exceptional and rare cases, and then its presence can be proved to be due to local and exceptional causes. Moreover, clinical observation shows that the disease always has its origin in a lesion of the tissues, generally an open wound, either through inoculation from without, or through mechanical or chemical irritation of the parts; but coccobacteria are often entirely absent from these starting-points of the disease; and, secondly, are often present in the pus and secretions of wounds and abscesses, without exciting septicæmia.

Inoculations which will cause septicæmia may be made with materials coming from the acute special inflammations mentioned, or from putrefying animal liquids and infusions. Coccobacteria are almost always present in these liquids, but they may be removed, and yet the virulence of the liquid will still be preserved (*see* experiments of Onimus, Hiller, and Panum).

Coccobacteria having thus been eliminated, what remains? Only the products of putrefaction in one case, and those of inflammation in the other. Must we not, then, conclude that there is produced in the secretions of these wounds, or in the adjoining tissues, a certain product of inflammation which resembles, if it is not identical with, the poisonous principle of the products of putrefaction. The latter is known as "putrid poison;" to the former Billroth gives provisionally the name "phlogistic zymoid."

It is highly probable that this virulent substance can be taken up by vegetable forms (coccobacteria), which may then serve as carriers of contagion, and that it is very favorable to their rapid multiplication, by which it is itself in turn very much increased in amount.

Prophylaxis and treatment.

The practical result of all these experiments and observations is to be sought in the treatment of wounds. They indicate that the acute inflammatory complications to which so many of the deaths following surgical operations are due, are induced by certain alterations in the secretions of the wound, or in the adjoining tissues, and that these alterations are due to abnormal chemical ("vital") action of the cell-elements of the tissues, itself caused by mechanical or chemical irritation of the parts, or by inoculation, and that this inoculation is effected by means of particles of this abnormal product, or by low vegetable organisms which have previously been in contact with and have absorbed it. Treatment, then, must be directed to avoid injurious mechanical and chemical action, to prevent inoculation, and to remove or destroy the poison when it has been formed.

The extent to which these indications can be met will be best learned from a description of the measures in general use. Billroth (*loc. cit.*) discusses subcutaneous wounds, treatment with caustics, attempts to get union by first intention, open treatment, immersion and irrigation, treatment of deep irregular wounds, disinfection, and antiseptics. In addition to these should be mentioned Guérin's permanent dressing of cotton-wool without attempting primary union, a mode of treatment which is now quite popular in France.

The favorable course of subcutaneous wounds is too well known to need more than a passing mention, but the application of this method is limited to comparatively few surgical operations, most fractures, and some penetrating wounds which heal on the surface by first intention. Recent investigations have not added much to our knowledge of the causes of the good results of this method. They appear to be due to the slight extent of the injury, the favorable conditions for reunion, and the exclusion of the air.

Treatment with caustics is based upon the fact that primary acute phlegmonous inflammations often occur during the first two or three days, before suppuration has fairly set in. By producing an eschar upon it, the whole surface is protected as by a skin; and, when the eschar falls, a healthy granulating surface is left behind. To avoid too great febrile reaction, the cauterization must be superficial and applied only to wounds of moderate size. The same result may be obtained in extensive superficial injuries, such as burns of the second or third degree, by creating an artificial skin by means of various adhesive preparations, such as collodion mixed with castor-oil, gum-tragacanth, finely-powdered flour dusted over the surface, or a mixture of molasses and gum-arabic.

Union of the wound by first intention throughout its whole extent is theoretically the best way to meet all the indications, but the failures of attempts to procure this result are so frequent in all large or irregular wounds, and their consequences so disastrous, that the method is now generally abandoned in large hospitals, except for minor cuts, wounds of the face, and also, according to Billroth, after enucleation of tumors or glands which have a firm fibrous capsule. If it is attempted, great care must be taken that the stitches be not too tight, and the pressure of the bandages not too great; and, for the deeper wounds, Simpson recommends deep metallic sutures and occlusion of the arteries by acupressure, and it has also been advised that the ends of the ligatures should be attached to a long needle and carried to the surface through the neighboring tissues so as to leave the main wound unobstructed by them. The causes of the frequent failures will be mentioned under treatment of large irregular wounds. A serious complication appears during the first forty-eight hours in the form of acute phlegmonous inflammations, followed by septic poisoning, and it is always doubtful if the bad effects of the first treatment can be overcome.

The open treatment of wounds consists in free exposure of their whole surface to the air. Part of the secretions form a crust upon the surface of the wound, the rest flows away, and the wound remains odorless. The crust is dry and consequently unfavorable for the development of spores that may fall upon it; and when it comes off it discloses a healthy, granulating, perhaps partly cicatrized surface, which cannot easily be injured by contact with ferments. This is the "healing under a scab" of the English authors, of which Paget speaks so highly. Billroth says the method was first introduced in 1856 by Vézin, and that he himself adopted it in 1860, and has since employed it with the best results in amputations, resections, and after removal of many tumors. Its chief advantage is that it protects against the dangerous primary phlegmonous inflammations by allowing free escape of all the secretions, but it does not protect against erysipelas and hospital gangrene, and is useless when inflammation has once set in. If the wound is irregular and permits the accumulation of pus and secretions, there is danger of inoculation by micrococcos.

Treatment by immersion and irrigation is based upon the same principle as the preceding. Irrigation is difficult to apply, but has the great advantage of washing away all the secretions as soon as they are formed; but, when simple immersion is used, more or less pus remains adherent to the wound. In both modes of treatment primary phlegmonous inflammation rarely occurs, but if any does begin, its consequences are rendered more disastrous than ever by the tumefaction of the granulations which imprison the products of decomposition.

Deep irregular wounds, forming pockets or cavities in which the secretions may stagnate and decompose, are the most dangerous. If the wound involves normal loose cellular tissue, the confined secretions trickle back into it and cause acute inflammation, or are absorbed by the lymphatics and veins, giving rise to thrombi, which break down and cause dangerous emboli, generally of the pulmonary arteries. If the tissues are firmer, or if they have been thickened by chronic inflammation, the danger of infiltration is much less, and this is one reason why subperiosteal resection of bones results less frequently in pyæmia; similar favorable conditions exist when an inflammatory process has attacked the interior of the sheath of a tendon, or when an encapsulated tumor or gland has been removed. During the first two or three days every care must be taken to insure the removal of all the secretions; after suppuration has begun, the danger is less, and is due chiefly to the collection of pus in cavities formed by irregular lines of union, or sometimes in the subcutaneous tissue, or between the muscles, or in the marrow of the bones. This happens about the end of the first week, and, if the complication is promptly recognized and its cause is accessible, all the new adhesions must be broken up, free incisions made into all purulent cavities and infiltrations, and the wound cleansed and allowed to lie open. In cases of deep suppuration, or those involving joints and bones, this cannot always be done, and it then becomes a problem, as difficult as it is important, to determine whether amputation shall be performed, and at what time. On this point Billroth says (*loc. cit.*, p. 227), in suppuration of the shoulder, elbow, and ankle joint, we can accomplish something by means of carefully-conducted treatment with ice; but in deep suppuration of the lower leg or of the forearm, extending along the bone, or of the thigh, or of the knee-joint, he would decide promptly upon amputation, after the complication had made steady progress for a few days. The result of amputation depends upon the extent of the general infection. If metastatic abscesses have formed, it is seldom of any avail; but if this is not the case, then, no matter how high the fever nor how frequent the chills, amputation is always to be tried.

A consideration of the source whence the infection is derived is essential to treatment by means of antiseptics or disinfectants. Practically we need not consider the possibility of infection by means of spores entering the body through the lungs or the intestines, for a general destruction of all the spores in the air and food is impossible, but against immediate inoculation of the wound much may be done by the strictest cleanliness on the part of the surgeons and attendants, and by the use of various disinfectants. We know that all coccobacteria-spores cannot grow in all liquids, and that many which fall from the air upon wounds do not vegetate because they do not find there the necessary nourishment and conditions; *and we have every reason to suppose that there is developed in hospitals, in the pus and secretions of wounds, a variety of this plant which becomes especially adapted, by this cultivation, to live upon such materials*, and from such a variety most danger is to be apprehended. Such spores could be transported by the air, by the hands and instruments of the attendants, and by the bandages. Billroth considers this source of danger so important that he uses no sponges in operations or dressings, except in cases of ovariotomy and the like, where they cannot be dispensed with, and substitutes for them pledgets of cotton. Those which he is compelled to use he disinfects thoroughly with hydrochloric and carbolic acids.

Thorough ventilation is the only practicable means of disinfecting the air, but there is no lack of good antiseptics which may be used directly upon wounds. It is essential to their efficacy that they should be constantly in contact with every portion of the wound, and, since that is practically impossible, the use of these agents does not release the surgeon from the obligation to employ every additional means to increase the cleanliness of the wound and promote the free discharge of all its secretions.

Among the best known disinfectants the following may be mentioned:

Chlorine-water—in its concentrated form (one to ten); it is rather painful, and when diluted its application must be frequently renewed.

Iodine—a very active antiseptic, and especially useful against diphtheria and hospital gangrene; the objection to it is that the applications must be frequently renewed, and are then likely to cause acute inflammation.

Glycerine—a very useful and cleanly dressing.

Alcohol—theoretically excellent, but its rapid evaporation is a great objection. Gosselin uses it for all wounds of the head and face, to prevent suppuration, and favor union by first intention.

Camphor—only slightly soluble in water, and is not a deodorizer.

Olive-oil—useful to prevent inoculation by falling spores, but is useless after infection has taken place.

Subacetate of lead—very highly recommended; even in a very weak solution it kills bacteria, and has a slight astringent effect upon the surface of the wound, but it is not a good deodorizer.

Carbolic acid—has become very popular of late years, Billroth thinks it is in no way superior to many others; its odor is very offensive to some, and when dissolved in oil it ruins the dressings and bedding. Salicylic acid is beginning to replace it.

We have finally to consider the cotton-wool dressing, the *pansement à l'ouate* of A. Guérin. After the operation has been completed, bleeding arrested, and the surface of the wound washed with water or some weak disinfecting solution, a large bunch of cotton-wool is placed between the lips of the wound, and the whole limb is then enveloped in a layer of cotton eight or ten inches thick, which is then bound down very firmly with roller-bandages, which are tightened on the following day, and then the dressing remains untouched for about three weeks. If the pus makes its way between the limb and the dressing, and appears after a few days at its free margin, additional bunches of cotton are placed over the edge and bound down. Clinical experience shows that patients whose wounds are dressed in this way generally remain free from fever and pain, eat and sleep well, and make good recoveries. In one case that came under my own notice, and two recently reported by M. Guérin (Académie des Sciences, March 23, 1874), removal of the dressing at the end of the third week was followed on the first or second day thereafter by severe phlegmonous complications, due, apparently, to the temporary exposure. Guérin claims that this method differs from "occlusion,' because air can pass freely through the cotton which acts only as a filter, freeing it from all spores and ferments. Pasteur says that ferments are undoubtedly present in the cotton and in the wound, but that the physical condition of the pus is rendered unfavorable for their multiplication by the absorption of its liquid portions, and he advises exposure of the cotton to a temperature of about 400° Fahr. before application as an additional precaution.[1] However that may be, the method has two evident advantages; equable temperature and complite immobility of the limb.

It must be borne in mind that these procedures have been instituted to meet the exigencies of, and have been judged by their results in, large hospitals, especially those of Europe. The hygienic conditions found in those establishments are very unfavorable; many of the buildings were erected generations ago, and in accordance with ideas which are now universally rejected. They are found in the centre of large cities, surrounded by other buildings, their ceilings low, their beds crowded, and ventilation dependent entirely upon the will and intelligence of the nurses.

In the country and in new hospitals of improved construction attempts to get union by first intention are generally successful, and the dangerous acute primary phlegmonous inflammations, to which reference has been made, so frequently are rare.

To the efforts of the Sanitary Commission during the war of 1861–'65 is due the spread of the pavilion system of hospital construction. This consisted of groups of separate buildings of only one story, removed sufficiently from one another to allow free circulation of air, thus supplying as nearly as possible the conditions of open-air treatment; and the success of those army hospitals was so great that the principle of their construction is now generally accepted, and a large hospital has been recently built at Leipzig on this plan.

The ideal hospital is one that shall be destroyed and replaced every year or two, and, although that is practically impossible, may we not hope that the statistics of the future will show that intelligent construction of hospital buildings has at last removed the evil influence which has so long baffled the zeal, skill, and devotion of surgeons?

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[1] I have had occasion to examine several of these dressings after removal and have always found living bacteria present in the more or less liquid pus which bathed the wound, even when the dressing had been perfectly successful.

Art. II.—*The Histology of the Scrofulides* (*Lupus*).[1] By Henry G. Piffard, M. D., Professor of Dermatology, University of the City of New York, Surgeon to the Charity Hospital, etc., etc.

Believing that Lupus is essentially a scrofulous affection, I have adopted the nomenclature and classification of Hardy, who arranges the different varieties as follows: erythematous scrofulide, corneous scrofulide, pustular scrofulide, tubercular scrofulide, and phlegmonous scrofulide.

For a graphic description of the clinical features of these affections, the reader is referred to Hardy's original memoir,[2] or to the writer's translation of the same.[3] I shall here briefly consider their histological peculiarities, as they are suggestive of many important indications bearing upon treatment.

Histology.—The histology of the scrofulides is somewhat obscure. Almost our entire knowledge of these affections, from an anatomical point of view, is the result of investigations made in Germany, but as a rule, in describing the morbid changes, the German writers have ascribed them simply to "Lupus," or latterly to either "L. erythematosus" or "L. vulgaris" without mentioning the specific form that was under consideration. Consequently, while we have a pretty uniform and reliable account of the microscopic changes in the L. erythematosus, L. vulgaris is credited by different writers with widely-different appearances.

Erythematous Scrofulide, or Lupus Erythematosus.—For a knowledge of the histology of this variety we are mainly indebted to the researches of Geddings,[1] Neumann,[2] and Kaposi.[3] The following account is taken from the latter's description in Hebra:[4]

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[1] Read before the New York Dermatological Society, June 17, 1875.

[2] "Leçons sur la Scrofule et les Scrofulides," etc., Paris, 1864.

[3] *New York Medical Gazette*, December 5, 1868, *et seq.*

At the period when the affection is still beneath the surface, and before the efflorescence appears plainly in view, we observe upon microscopical examination an enlargement of the sebaceous glands, due to an increase in the size of their enchymatous cells, with dilatation of the capillaries, and œdema of the connective tissue surrounding the glands. When the papules are situated more superficially, we find capillary enlargement, and œdema of the tissue surrounding the hair-follicles and mouths of the sebaceous ducts, with increase in the size of the neighboring papillæ. At a still more advanced period we have abundant cellular infiltration of the corium around the follicles and glands. The cells have large nuclei, which imbibe carmine readily. In some cases this infiltration is so great that it obscures the vessels and connective tissue, and even to a certain extent the contour of the papillæ. When the central depression in the patch appears, the infiltrated cells corresponding to it undergo fatty degeneration. Finally, when the cicatricial process is fully developed, we find vascular atrophy, degeneration of the external root-sheaths of the hairs, disappearance of the pigment, with atrophy of the sebaceous glands, and of the surrounding connective tissue. The earlier changes are well shown in Fig. 1.

In the cases where hæmorrhagic bullæ appeared in connection with the eruption, Kaposi found in addition, decided alteration of the sweat-tubes, with a rich cellular infiltration around them. An important point in connection with these processes is the fact that the alteration in the sebaceous glands precedes the surrounding infiltration.

Lupus Vulgaris.—In examining the literature pertaining to the histology of L. vulgaris, we are struck with the variety of morbid appearances which have been ascribed to this affection. This is mainly due to the comprehensiveness of the name under which they have been described, and the fact that observers have generally failed to state the particular variety, form, or stage of the lesion, the microscopic appearances of

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[1] "Sitzb. der k. k. Wiener Akad.," lvii., B. iii.

[2] "Lehrbuch der Hautkrankheiten," 1870.

[3] "Archiv für Derm. u. Syph.," 1869 and 1872.

[4] Hebra, Hautkrankheiten, B. ii., S. 312.

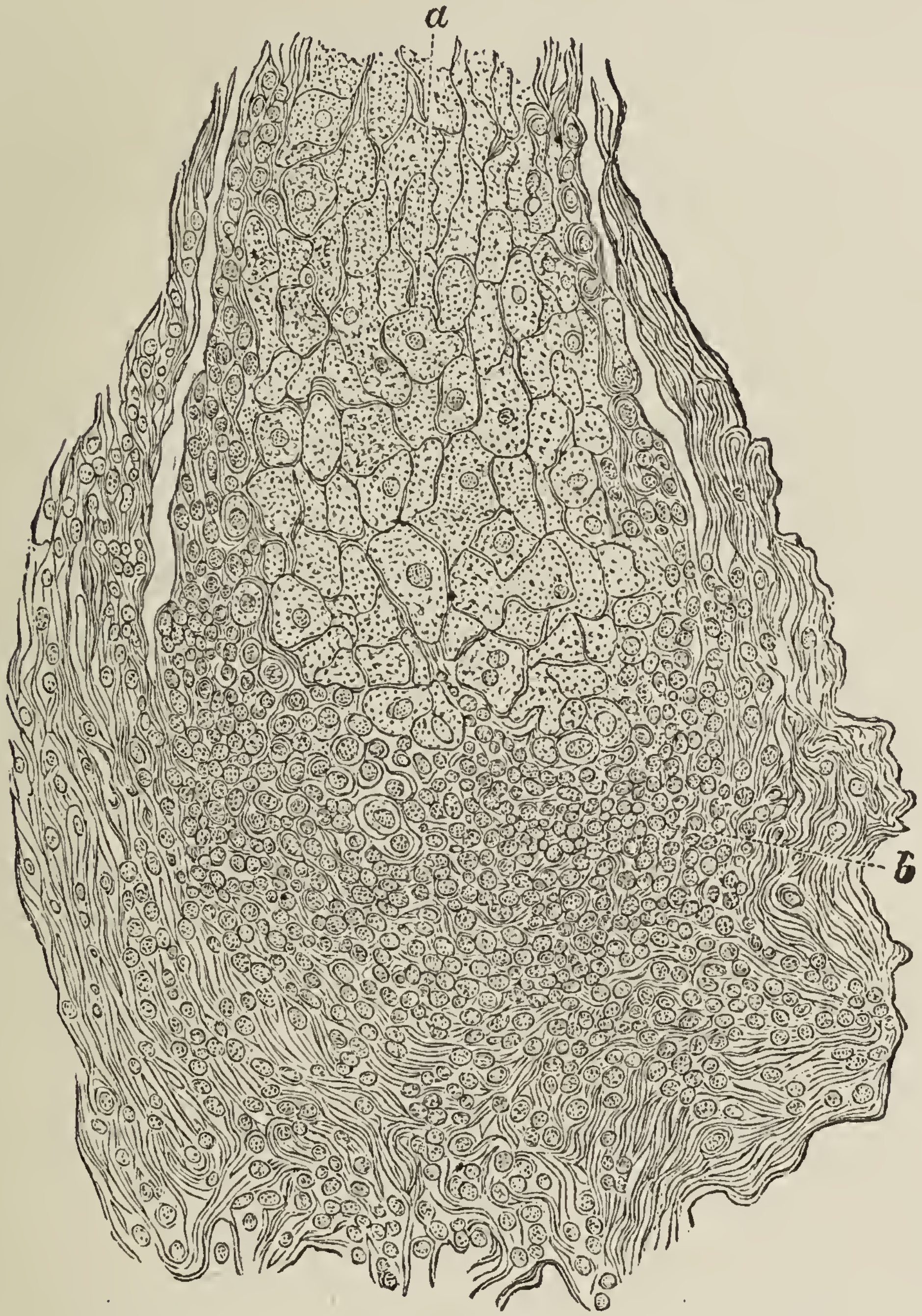

Fig. 1.—Lupus Erythematosus (Geddings): *a*, Sebaceous Gland; *b*, Cell Infiltration surrounding the Gland.

which they recorded. The following comprehend the principal changes found by different observers:

Hyperplasia of the sebaceous glands—Foerster,[1] Veiel,[2] Rindfleisch,[3] Virchow (according to Simon).[4]

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[1] "Atlas der microsk.-patholog. Anatomie," Leipsic, 1854–'59.

[2] "Mitth. üb. die Behandl. d. chron. Hautk.," Stuttgart, 1862.

[3] "Lehrb. d. path. Gewebelehre," Leipsic, 1867–'69.

[4] "Die Hautk. durch anatom. Untersuch.," Berlin, 1851.

Hyperplasia of the rete Malpighii—Berger,[1] Pohl.[2]

General diffuse small-cell infiltration—Auspitz,[3] Virchow,[4] Neumann,[5] Kaposi,[6] Essig.[7]

Little masses of closely-packed cells, forming small nodules, "cell-heaps"—Kaposi, Essig, Warren,[8] Homolle.[9]

Giant-cells (Riesenzellen, myeloplaxes) — Friedlander,[10] Lang.[11]

Concentric stratification of cells—Homolle, Warren.

Perivascular cell-sheaths—Kaposi, Essig.

Before analyzing these, however, I will state the appearances which I have myself observed:

1. *A Tubercle removed from Right Side of the Nose, near the Eye.*—A perpendicular section showed the tumor to be composed almost entirely of a single sebaceous gland which had undergone great acinous enlargement. The different acini were closely packed with cells, the peripheral ones being large and nucleated. The central cells were stratified, and refused carmine, but imbibed picric acid freely. Commencing alterations were found in a neighboring gland, but as yet no attempt at stratification of its cells. One hair-follicle was found in the section; the hair was atrophied and partly disorganized, the follicle very wide and filled with a mass of cells resulting from hyperplasia of the root-sheath; hyperplasia of the contiguous gland-cells, moderate diffuse small-cell infiltration of the connective tissue.

2. *Tubercular Scrofulide, with Deep Ulceration.*—Two contiguous tubercles removed from right side of the chin, one of them just commencing to ulcerate. On section found the stratum corneum normal, except upon the border of the commencing ulceration. The rete Malpighii was thickened, with deep and wide prolongations downward, sep-

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[1] "De Lupo," Gryphiæ, 1849.

[2] "Ueber Lupus," Virchow's Archiv, B. vii.

[3] "Ueb. Zelleninfiltrationen der Lederhaut," "Wien. med. Jahrb.," 1864.

[4] "Krankhafte Geschwulste," B. ii.

[5] "Lehrb. der Hautk.," Wien, 1873.

[6] Hebra, *op. cit.*

[7] "Archiv für Heilkunde," 1874.

[8] "Anatomy and Development of Rodent Ulcer," Boston, 1872.

[9] *Archives gén. de médecine*, Mars, 1875.

[10] Virch. Arch., B. lx., H. i.

[11] "Vierteljs. für Derm. und Syph.," B. i.

arating equally long but extremely narrow papillæ. There was slight hyperplasia of the sebaceous glands. The most characteristic changes were a large number of "cell-heaps," consisting of collections of small, closely-aggregated cells, the cells being sometimes round, but most frequently oval—the outermost row of cells having their long axes in the direction of radii. Most of these cell-heaps measured from .2 mm. to .8 mm. in diameter, but varied in outline. The cell-heaps were very distinctly separated from the surrounding connective tissue, due probably to greater shrinkage of the cells during the processes of preparation. In many places there were vacant spaces, as if cell-heaps had dropped out during manipulation. The surrounding connective tissue was sparingly infiltrated with small round cells, but there was a decided increase in the number of fusiform and branched corpuscles. In some of the larger cell-heaps there were one or more foci around which the cells were commencing to exhibit concentric stratification. The vessels were not surrounded by cell-sheaths, but the rod-like nuclei belonging to their contractile coats were very much lengthened. Diffuse small-cell infiltration was an unimportant feature; no giant-cells found.

3. *Tubercular Scrofulide, with Superficial Ulceration.*—Ulcerating tubercle from nose of A. C., aged twenty-four, removed by excision March 15, 1875, ten years after first appearance of the lesion. The ulcer was about 10 mm. in diameter, and surrounded by an elevated ring and bluish-red areola. After alcohol-hardening, sections were examined, some in glycerine and acetic acid, others stained with carmine in glycerine, others stained with acinic acid, and others with carmine and logwood, and mounted in damar.

Stratum corneum, rete Malpighii, and papillæ absent from the ulcerated surface; upon the raised border, stratum corneum normal; rete sends down deep, but not broad, prolongations, cells of the rete presenting nothing unusual; the whole corium and subcutaneous tissue down to the muscles (*pyramidalis nasi*) thickly packed with small-cell infiltration, muscular layer exempt. These cells were mostly round, and could be distinguished from each other simply by the deeply-stained nuclei three *micra* in diameter. When detached from the mass and examined alone, were found to be surrounded by a thin transparent layer of protoplasm, a few with thicker protoplasm giving the cell a diameter of five to seven *micra.* Many nuclei without protoplasm; connective-tissue corpuscles of various forms. In addition, there were certain oval bodies sharply defined from the surrounding infiltration, and varying from thirty *micra* by twenty *micra,* to others double this size. A small one, isolated from the mass and measuring thirty *micra* by twelve, was composed of very transparent, finely-granular protoplasm, and contained eight oval nuclei, most of them being near the periphery of the cell. These are the giant-cells (Riesenzellen) of Friedlander and others. Larger ones contained forty or more nuclei. These giant-cells were only found in the floor of the ulcer, that is, in the older portion of the lesion, and not at all on the parts still covered by epidermis. These cells contained no highly-refractile particles, and were not specially stained by osmic acid. No sebaceous glands or remnants of them were found in any of the sections. Sudoriparous glands unaltered, capillaries enlarged but not surrounded by cell-sheaths; connective tissue normal, except where obscured by the infiltration; elastic fibres very abundant.

4. *Hypertrophic Tubercular Scrofulide of Vulva* (excised by Dr. I. E. Taylor. Thin sections loaned me by Dr. J. W. S. Arnold).—In the newer portions of the growth, it was found to consist of a mass of small round cells permeated everywhere by new vessels quite close together, running sometimes parallel, and sometimes with a radial distribution, but not reaching quite to the surface; vessel-walls thin, no perivascular cell-sheaths. Transverse sections gave circular outline to the vessels, which sometimes contained white, but usually red blood-corpuscles in abundance (Fig. 2, *a*). In addition, large and irregular, though mostly oval, cavities, containing red blood-corpuscles, with distinct contours. Diffuse infiltration of red corpuscles through large tracts, mingled with round nucleated cells. Long, flask-shaped prolongations of rete cells, running obliquely downward. These prolongations were frequently six to ten times wider in the deeper portions than near the surface. In one or two places, commencing

stratification of cells. In old portions of the growth, newly-formed, broad, fibrillar connective-tissue bands mingling with the above (Fig. 2, *c*). In a few places compact masses of small cells, such as found in specimen No. 2; no giant-cells. With the exception of these rare cell-heaps, the other appearances are such as is found in germinal tissue generally.

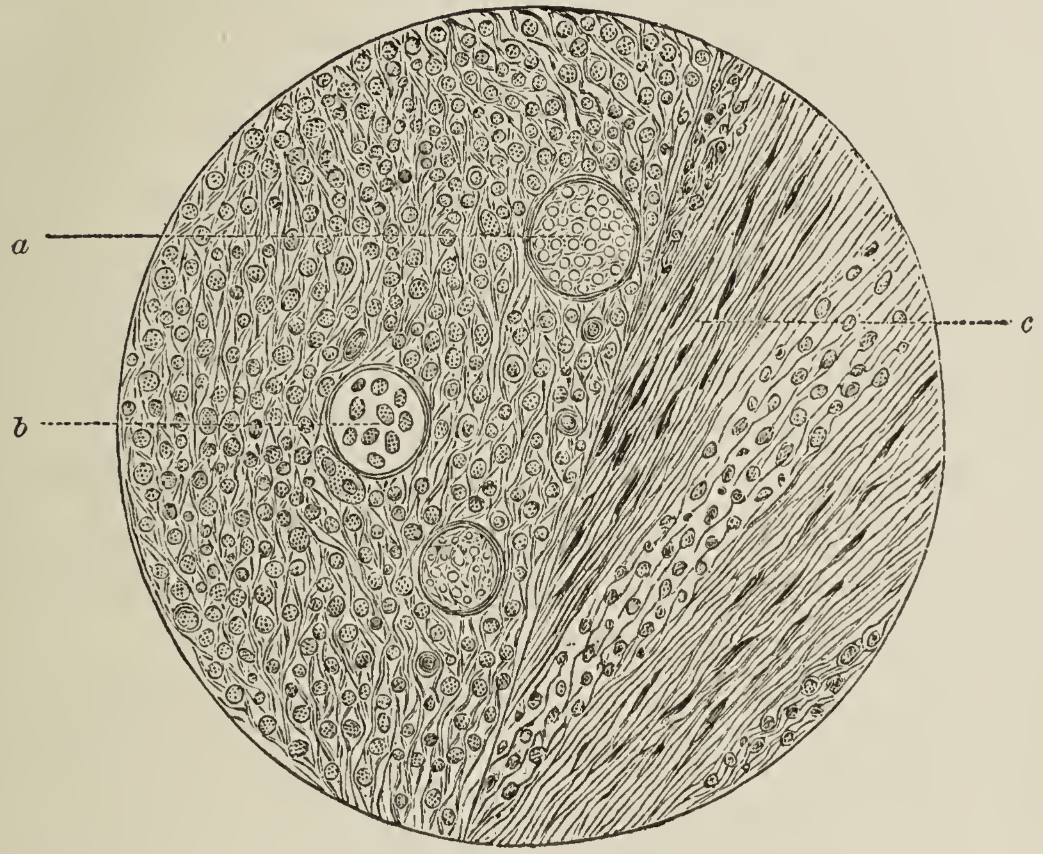

FIG. 2.—Hypertrophic Tubercular Scrofulide.—To the left, younger growth; to the right, older growth: *a*, cross-cut of new blood-vessel filled with red corpuscles; *b*, vessel containing white corpuscles, young granulation tissue surrounding; *c*, young connective tissue.

5. *Pustular scrofulide* of twenty years' standing, in a patient at the Charity Hospital. A small and quite superficial portion of not yet ulcerated integument from the cheek was removed with scissors, and immediately placed in saturated solution of nitrate of silver in ninety-five per cent. alcohol. After hardening, thin sections were made and treated in different ways. Owing to the small size of the piece removed, and the strength of the alcohol, the tissue was much shrunken and not in the best condition for examination. The following points, however, were ascertained: The horny epidermis was thicker than usual, but easily detached. At different points in this layer were found small oval collections of round cells, encapsuled as it were, underneath which there was a stratum

of horny cells which freely imbibed carmine; but underneath this stratum there was another, lying next the rete, which refused carmine. The cells forming these collections did not imbibe carmine readily, and were distinguished from the ordinary horny cells with difficulty, owing to the impregnation of the superficial horny cells with blackened silver. The cell-collections, however, could be distinguished with great ease by the aid of polarized light, as these cells depolarized the light much more strongly than the neighboring stratum corneum. The rete was thicker than usual, with deep interpapillary depression. Stellate corpuscles blackened by silver were scattered through this layer. The papillæ were enlarged, contained many blackened stellate corpuscles, and some were found partly in the papillæ and partly in the rete. There was comparatively little small round-cell infiltration in the superficial parts of corium. As the sections did not include the deeper parts of the cutis, nothing can be said concerning it. There were no cell-heaps or giant-cells. No other changes of importance were noted.

6. A non-ulcerated tubercle, subsequently removed from the arm of the same patient by Dr. Keyes, and hardened in Muller's fluid, upon examination presented a thickened non-adherent stratum corneum, in which were collections of small oval pigment-cells (it is possible that the cell-collections found in the previous specimen were of the same character) without apparent nucleus, but crowded with fine pigment-granules. The rete was thickened, with deep and narrow depressions, papillæ lengthened but narrow; slight and scattered small-round-cell infiltration; evident perivascular cell-sheaths, both about the papillary loops and deeper vessels.

It will be seen from the digest of the observations of others that Lupus vulgaris presents very manifold microscopic appearances, and it will be noticed that the changes observed by myself coincide with those of previous observers, with this difference, that, with the exception of Essig, the writers cited have laid special stress upon the particular appearances which I have arranged before their names, while my own examinations have presented different changes, varying with the differing clinical varieties observed. For instance, Foerster, Virchow (according to Simon), and Rindfleisch, describe the lesion of L. vulgaris as a change in the sebaceous glands, Rindfleisch calling it an *adenoma* of these glands, and going so far as to declare that he can diagnosticate lupus microscopically by these changes alone. This exclusive position is not tenable, as, of the six specimens examined by me, this adenomatous condition was exhibited in but one. *Hyperplasia of the rete*, specially dwelt upon by the older observers, Pohl and Berger, was exhibited in my fourth, fifth, and sixth specimens. *General small round-cell* infiltration, which the majority of observers regard as a prominent, though not *characteristic* feature,[1] was not observed in a marked degree except in my fourth specimen. The *cell-heaps* were specially noticeable in my second, while the *giant-cells*, constantly found by Friedlander, were only detected in my third. *Concentric stratification* of cells was noticed in my first, with somewhat suspicious indications in the second. *Perivascular* cell-sheaths, so frequently observed by Kaposi and Essig, was not a prominent feature in any of my own specimens, in fact was distinctly determined in but one. The writers cited have been inclined to regard the appearances observed by them as more or less characteristic of Lupus vulgaris, with the sole exception of Essig, who, in examining some fifteen specimens, met with most of the diverse appearances which I have myself encountered.

We may, then, conclude that the different scrofulides or varieties of lupus do not present identical histological characters. It remains to be seen whether the different *clinical* varieties, described by Hardy and accepted by myself, present features peculiar to themselves. This point can only be determined by repeated and careful examinations of each variety in its different stages. The solution of this question will be greatly facilitated by the adoption of a uniform nomenclature. The German school have given us simply L. erythematosus, and L. vulgaris; the English, L. exedens and L. non-exedens; while the French (Hardy), more philosophically, I think, have accepted the classification which has been here adopted.

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[1] Similar infiltrations are found in syphilis, leprosy, simple inflammation, and in a host of other conditions.

The next point to be considered is whether the different scrofulides of Hardy are *varieties* or *stages* of lupus. Any one at all familiar with histological studies, and who considers the many histological changes hereinbefore described, will have no hesitation, I think, in accepting the clinical conditions as *varieties*, and not simply *stages*, as maintained by Kaposi[1] and Squire,[2] if I rightly understand them.

We must now consider the origin of the observed changes. As regards the *hyperplasia* of the *sebaceous glands* and *stratification* of their contents, it may be stated, as a general rule, that when epithelium undergoes extensive proliferation, and is at the same time restrained by unyielding boundaries, it is obliged to stratify, as in the condition with which we are all familiar in epithelioma.[3] The *hyperplasia of the rete* is a simple histological process. The general diffuse cell-infiltration admits of two explanations. The small round cells are either derived from proliferating connective-tissue corpuscles, as maintained by Virchow, or are leucocytes, as would be declared by the modern school of Cohnheim. I confess that the older view of Virchow seems to me the more probable of the two.

The only explanation of the occurrence of the cell-heaps has been offered by Warren,[4] who in some of his cases found the remains of capillary blood-vessels within the cell-clusters, and in others an appearance which suggested an invasion of the lymphatic spaces and capillaries. In my own case (specimen No. 2) I was unable to detect any central vascular remnants, and am inclined to believe that the cell-heaps are derived either from proliferating cells of the rete, or else from the endothelium of the lymphatics, after the manner described by Koester[5] in connection with epithelioma.

Giant-cells, such as here described, have been found by Friedlander, Schüppel, and others, in tuberculous deposits and scrofulous glands, and are regarded by Lang[6] as evidence of retrogressive changes. This is not probable, in view of the fact that they are found largely in fœtal marrow (Robin), and quite recently between pieces of glass inserted under the skin of dogs by Ziegler.[1] As yet no reasonable explanation of the genesis of these cells has been offered.

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[1] Hebra, *op. cit.*

[2] "Lupus-Disease of the Skin," London, 1874.

[3] The first of my cases would undoubtedly have blossomed out into a frank epithelioma if not interfered with.

[4] *Op. cit.*, p. 33.

[5] "Die Entwicklung der Carcinome u. Sarcome," Würzburg, 1869.

[6] *Loc. cit.*

The concentric stratification of cells is manifestly due to pressure.

The perivascular cell-sheaths are supposed to be due to an exudation or diapedesis of white blood-corpuscles, which collect in the perivascular spaces, an explanation which must be accepted until a better is offered.

What light, if any, does this review of the histology of lupus throw upon the nature of the disease? It teaches us that some of the scrofulides are to all intents benign; while others, those characterized by cell-heaps and cell-stratifications, are, to say the least, semi-malignant and closely allied to epithelioma. Clinically they have been found to bloom out into typical epitheliomata (Hebra, Lang, and others), and it is no more than we would have a right to expect from the microscopical appearances which they present.

Notes of Hospital Practice.

WOMAN'S HOSPITAL, NEW YORK.

CLINIC BY DR. THOMAS ADDIS EMMET.

Obstructive Dysmenorrhœa.—Gentlemen: Dysmenorrhœa is one of a common class of cases that fall to the hands of every general practitioner, as well as to those who give most of their attention to diseases of women. Unfortunately, however, it cannot at all times be treated successfully, for either we do not appreciate its true cause in some cases, or, if we do, we are powerless to remove it. I shall refer now particularly to what is known as obstructive dysmenorrhœa, or dysmenorrhæa in which there is some mechanical obstacle to egress of the menstrual blood. There are of this form of the disease two principal varieties: first, that in which the obstruction is found at or below the vaginal junction, and secondly, that in which the obstruction is in the body of the uterus. The first class is congenital, and is produced in the following way: When the uterus is becoming developed the growth of the neck is much more rapid than the growth of the body, and as a result the cervix passes down to the axis of the vagina, and then slides along the posterior wall, causing a flexure at the union of the body with the cervix. Why this happens in some cases and not in every case is not easily understood, but the predisposing causes may be considered, I think, to be laxity of the uterine tissue and elongation of the neck. When menstruation occurs in this class of cases, dysmenorrhœa appears early in the flow, but as the flow progresses the pain ceases. This may be understood by this diagram (Fig. 1) on the black-board. At the beginning of menstruation the flexure is as you see it here, but as the congestion of the organ increases the cervix becomes thickened, shorter, and straighter from the engorgement, as shown by the dotted line. The patient now on the table is an example of this variety of disease. When the finger is carried into the vagina, and then anteriorly to the cervix, the flexure is readily detected, and when the sound is introduced it demonstrates it still more clearly. The treatment of the case consists in relieving the obstruction by dividing the cervix posteriorly. When this is done the circu-

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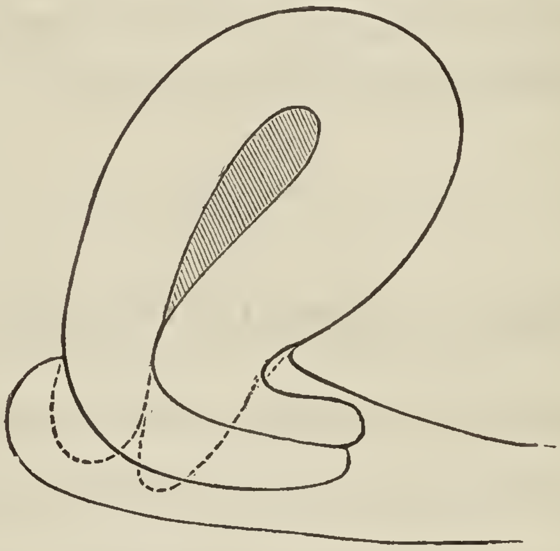
[1] "Exper. Untersuch. ü. d. Herkunft der tuberk. Elemente, u. s. w.," Würzburg, 1875.

Fig. 1.

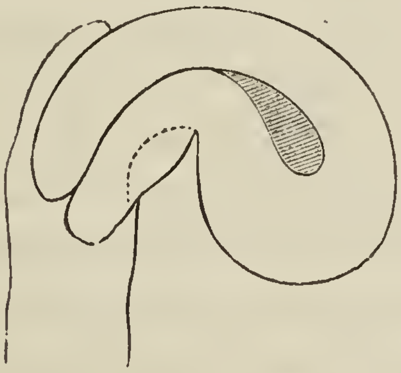


lar fibres are cut and the longitudinal ones gradually retract, and the canal becomes straight.

The advantage of a division of the cervix posteriorly is that there is less risk from bleeding, and when the incision has healed there will be no gaping of the edges, as the flaps are kept sufficiently in contact by the lateral walls of the vagina. The manner of performing the operation is to hook a tenaculum into the os and draw the cervix forward, then by means of the scissors slit the cervix back as far as the vaginal folds. These folds show the junction of cervix and body, and serve as a guide in the operation. There is no danger of cutting the circular artery if this precaution is attended to, and there is also no flexure in the uterine canal. After the operation, a tampon should be applied, for, although no bleeding may appear then, it may appear some time subsequently. The incision is kept open by drawing the point of a sound through the angle of the wound. Daily dressings are applied to keep the edges apart. It is a very important point in the after-treatment that the patient be kept in bed until the parts have healed.

In reference to the second class of obstructive dysmenorrhœa, which I have already referred to, the flexure takes place in the body of the uterus, and is the result of disease, either a localized metritis or the effect of a fibroid tumor. The body becomes bent on itself, as shown in this diagram (Fig. 2), and an increase of congestion increases the flexure. When the disease has existed for a long time, the fibres, at the point of flexure, undergo fatty degeneration from pressure, and absorption takes place, leaving as a result a permanent deformity,

FIG. 2.



as in caries of the vertebræ. When menstruation takes place in this class of cases, there is not much pain in the early stages, but as the flexure increases with the engorgement the pain becomes worse, and continues till the end.

The cure of this class of cases is very tedious. No operative procedures should be undertaken till all tenderness at and around the uterus has been removed. It may take a year or longer to prepare the patient, and this should be done by vaginal injections of hot water, together with appropriate treatment to the cavity of the uterus, such as Churchill's tincture of iodine, or the impure carbolic acid. When disease can no longer be detected, it may then be judicious to divide the cervix posteriorly, as in the former case, and then carry a uterotome up and incise the uterus at the point of stricture, so as to leave a direct channel in the inside of the organ.

Dr. Emmet proceeded to operate upon the patient in the manner he advised, cutting the cervix posteriorly, and leaving a tampon in the vagina to guard against bleeding. After two weeks the wound had healed, leaving a very free channel for the escape of menstrual blood.

BELLEVUE HOSPITAL, NEW YORK.

The Use of Hot Water as a Permanent Bath in Injuries.—Hot water has, within the past few months, been used in the treatment of some injuries, with marvelous results, in this hospital. There is no special novelty to be claimed for it, however, as it has been for a longer time, and in a more thorough manner, on trial at Mt. Sinai Hospital. It has been introduced also for a considerable time at St. Francis's Hospital. The results, however, that have been obtained at Bellevue Hospital warrant a more extended trial for the method than has yet been given it in this city. The manner of using it is to have tin vessels, formed so as to accommodate the extremities, and to them fastenings are attached, by which bandages can be applied, so as to steady the limb in any position.

The water in the bath varies from 100° to 105° Fahr., and is changed as soon as it falls below this. An additional advantage is obtained by the change of the water, as any discharge which forms is removed.

The following cases have been successfully treated, so far, in Dr. Bates's division:

Compound Comminuted Fracture of Metacarpal Bones.—The patient was engaged in a machine-shop, and while his hand was upon the anvil of a trip-hammer, the hammer—weighing seven hundred pounds—fell. It so happened that a file was on the anvil, and in this way the force of the hammer was arrested about half an inch before it reached its bed. When the hand was examined, it was found that the whole of the palm was a mass of pulp. The metacarpal bones were comminuted extensively, and there was apparently but small chance of saving the hand. It was, however, placed in hot water, and kept there for two or three weeks; and, at the end of that time, taken out and dressed. In three months the patient was sufficiently well to leave the hospital, and at present—nine months since the accident—he is able to move the fingers, and has a useful hand.

Compound Dislocation of the Ankle-Joint.—The second case was one of compound dislocation of the ankle-joint, in which the proximal end of the first metatarsal bone protruded from the foot. The dislocation was reduced, and the foot placed in hot water. At the end of a week it was taken out and dressed in the ordinary manner. At the present time the foot is doing well, and promises for the patient a good result.

Compound Fracture of the Metatarsal Bones.—In this patient the second, third, and fourth metatarsal bones of the foot sustained a compound fracture by a mass of rock falling on them. The foot was kept in the bath for fourteen days, and at the end of that time it was removed, and treated in the usual manner.

Gunshot Injury of the Hand.—The patient, while playing with a small cannon, received an injury which separated the flesh from the bones of the fingers to such an extent that the finger could be introduced around the bone. One of the fingers was removed shortly after the injury, and it was the intention to remove the other on the following morning. In the mean time the hand was placed in hot water, and, after twenty-four hours, looked so well that it was deemed advisable not to interfere. Since that time that patient has continued to do well, and now there seems but little chance of a bad result.

Contusion of Toe.—The great-toe of the patient was severely contused by a street-car passing over it. There was, however, no fracture of the phalanges. It was placed in hot water, and has continued to do well.

The time that the injured part is allowed to remain in the hot-water bath varies. The rule is, that it should remain there till all sloughs which form come away, and leave a healthy granulating surface. The time varies with the amount of the injury, but is usually from one to three weeks.

Proceedings of Societies.

BOSTON SOCIETY OF MEDICAL SCIENCES.

Report of Proceedings from January to March, 1875.

James J. Putnam, M. D., Secretary.

Tuesday, January 26th.—Dr. Dwight read a paper upon "The Bony Septum in the Neck of the Thigh Bone" (publication reserved). In answer to Dr. Bowditch, Dr. Dwight said that he had not examined enough specimens to be able to say whether the development of this structure was greater in one sex than in the other, but it had appeared to him to be most marked in the most strongly-developed individuals.

In answer to Dr. Webber, he said that he could not say any thing definite as to its connection with the age of the subject; but that, according to Wolff, it is found after the first year, and in one specimen of his own, which was certainly from a young child, it was well shown.

Dr. Bowditch showed a *chronograph* which he had made out of an ordinary metronome, by removing the bell from the inside, and attaching its hammer to a lever, at the end of which was a pen which wrote upon the usual revolving cylinder. Thus, at every second, fourth, or fifth, etc., stroke of the pendulum the straight line drawn by the pen was interrupted by a small but distinct jog. It could be cheaply made, and was sufficiently accurate for many experiments. An electrical circuit could, moreover, be established by connecting wires with the brass-work of the instrument, and with a cup of mercury into which the end of the wire lever was allowed to dip. At each stroke of the lever it was drawn out of the mercury, and means were thus afforded for irritating a nerve, etc., at regular and variable intervals.

Dr. Dwight made an oral communication refuting the recent statement of Dr. Lecomte, that in the *rotation of the forearm* the ulna rotates as well as the radius. He had formerly held the same notion, but had found that when a pin was driven into the ulna near the wrist, in the dead subject, and the observation of its motion thus accurately controlled, no rotation was to be seen. When the pin was only driven into the soft parts, however, or when, as in the ordinary method of observation, the motion of the bone was judged of by the hand, it appeared to rotate, owing obviously to the movements of the overlying soft parts.

Dr. Wadsworth spoke of some experiments which he had tried upon himself and one other person, to see whether *strychnine*, injected under the skin of the temple in the dose of gr. $\frac{1}{20}$, would increase the power of vision, as has been claimed by Von Hippel and by Cohn to occur under those circumstances to a marked degree, in the eye near which the injection was made. Dr. Wadsworth's results had been, in both cases, entirely negative.

Dr. Jeffries thought that a large number of experiments would be needed to prove that the increase of vision in the observations referred to was due to the strychnine, because a considerable improvement might arise from accidental causes, such as slight stimulation of any kind, or from changes in the illumination.

Dr. Wadsworth said that his own experiments had been made under a constant illumination, and that the test-letters were inspected singly, the rest being carefully concealed.

Tuesday, February 23d.—Dr. Bowditch showed a microscopic section of a *villus from the intestine* of a rabbit, made by Dr. H. P. Quincy, in which the border of some of the epithelial cells seemed to be split up, more or less, into rods, giving the cell a fringed appearance somewhat like that of ciliated epithelium. The observation appeared to confirm the statement that has been made, that the ciliæ and the cell-border are morphologically identical.

In answer to Dr. White's question as to the comparative size of these two structures, Dr. Bowditch said that he was not able to say accurately, but he thought that the cell-border was somewhat shorter than the ciliæ from the air-passages of the same animal.

Dr. Webber had accidentally found, in using the polarizer with the microscope, that *granular corpuscles* from preparations of the spinal cord, hardened in chromic acid or bi-chromate of potassium and preserved in glycerine, react peculiarly to polarized light, taking on a crystalline appearance. Neither cholestearine nor any other tissues or substances to be found in a number of sections of the brain and cord affected the light in a similar way, and Dr. Webber thought that this characteristic might serve to distinguish the granular corpuscles in doubtful cases. Dr. Webber agreed with the suggestion of Dr. White that this behavior of the granular bodies did not, necessarily, imply any physical change in them, since the preparations examined had been passed through one or more solutions of crystalline substances. Dr. Webber had also found, on examining sections of brain-substance, that the nerve-fibres affected the light differently, according to their direction.

Dr. Hay showed, by experiment, the *shortening of the focal distance of a plano-cylindrical lens* which attends its rotation around a line passing through its middle and parallel to the cylinder axis, and suggested that in this way, by a greater or less rotation, we could get a variable cylindrical lens, for practical use.

Tuesday, March 30th.—Dr. Wadsworth reported the following observation: A draughtsman, under his care, who had worn a pretty strong, concave, cylindrical glass, with vertical axis, before the left eye for a few days, came to him with the statement that when it was used he saw objects perspectively, i. e., lines really parallel appeared to converge toward a vanishing-point at the left hand.

Dr. Wadsworth explained the phenomenon as follows: When, both eyes being normal, an object, for example a parallelogram, is held directly in front of the eyes, perpendicular to the visual axis, the separate images formed upon the two retinas are not exactly like either each other or the object. The left end of the parallelogram being nearer the left eye than the right end, its image on the retina of this eye is larger than the image of the right end, and conversely, the image of the right end of the parallelogram will be the larger in the right eye. These two unlike images are unconsciously combined in the brain to give a single visual impression, the smaller end of each single image being fused with the larger end of the other. Under the conditions given, the smaller ends of the two images are equal, and the larger ends also equal, so that the average obtained by fusing either large end with the opposite small end is the same, and the impression produced is that of a rectangle.

If, now, a concave, cylindrical glass, with vertical axis, is placed in front of one eye, the image for that eye is shortened in the horizontal direction, a portion being cut off from either end, so that the small end is not so small, or the large end so large as those of the image in the other eye. These two images also are combined in the brain to give a single visual impression. Here, however, the average obtained by the fusion of the large end of the longer image with the small end of the shorter image is greater than that obtained by the fusion of the large end of the shorter image with the small end of the longer image; the resulting impression, therefore, is not that of a rectangle, but of a rhomb lying with its smaller end toward the side of the eye before which the glass is placed.

To control this explanation, Dr. Wadsworth had constructed two rhombs, one shorter than the other, resembling the images formed on the retinas of the two eyes, and the combination of the two, by means of the stereoscope, gave the impression of a rhomb, with its narrower end toward the side of the shorter figure.

Dr. Blake reported a case of *cicatrix in the membrana tympani*, stretching across the anterior portion of the tympanic cavity, and so lax that it could be pressed outward not only by forcing air through the Eustachian tube, but also by the slight pressure communicated through the column of air in the tube on pronouncing the nasal sounds *m*, *n*, and *ng*. The interesting point in the case lay in the fact that the excursions of the cicatricial membrane corresponded to the logographic curves of the nasal sounds, and were a measure of the pressure in the naso-pharyngeal space and Eustachian tube.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, June 17, 1875.

Dr. S. S. Purple, President.

Presentation of a Case of Extensive Cicatricial Bands relieved by Treatment.—Dr. Gurdon Buck, before reading the paper of the evening, presented a boy upon whom he had operated three times for extensive cicatricial bands, the result of a burn. He exhibited also a plaster cast which showed the appearance of the case before the operations. The age of the patient was six years. When he was two years old he received an extensive burn on the side, which eventually involved the right axilla and arm. The arm could only be elevated to an horizontal position, and when this was done a fan-shaped band extended from the ninth rib to the elbow, and from the elbow it was continued down to the wrist as a thickened cord. At the first operation the fan-shaped fold was transfixed by a knife, and divided at the place where it joined the arm. The fold thus separated spread out over the thorax, and the raw surface was covered by lint, and then by collodion.

After eight or ten days this dressing was removed, and the profuse granulation kept down by strapping with adhesive plaster. After the band was cut, the arm was kept extended, not only when in bed, but even when he was able to walk about. The result of this operation was to make a very decided gain as regarded the upward motions of the arm. Several months afterward another operation was performed, as it was found that the fold again began to develop. At this time parallel slits were made, and the skin approximated from either side so as to cover the wound, and in this way considerable improvement was again obtained. Last March the third operation was performed, and, when the surface had healed over, Dr. Buck fitted to the patient two rings attached to each other by a rubber band. The rings fitted over the shoulders, and rested on the axillæ, being attached posteriorly. The effect expected and obtained was, that by the pressure on the cicatricial surface the development of cicatricial bands would be arrested. When Dr. Buck showed the patient to the Academy the result was nearly perfect, the boy being able to hold his arm in a vertical position, and make any other motions he desired. During the progress of the case much benefit was obtained by a species of gymnastics, so arranged as to counteract the tendency to contraction of the bands, such as lifting the body by means of the arms to a point over his head.

Migration of Purulent Matter.—Dr. Buck, after the presentation of the former case, read a paper on this subject, and gave the history of several cases which bore out the views which he advanced. They were, that pus can readily find an exit from the abdomen through the sciatic notch; through the obturator foramen, with the obturator vessels; and through the femoral sheath, in company with the femoral vessels.

Dr. A. C. Post said where pus has formed deep down, the tendency is to follow the course of the different planes of connective tissue, and, unless prevented by some obstacle, to discharge through the skin. Under the condition referred to, it may empty into a mucous canal, but never find its way into any of the serous sacs, unless caused by sudden pressure. This can only be accounted for by the *vis medicatrix naturæ* which takes cognizance of the different processes which occur in the system.

Stated Meeting, July 1, 1875.

Dr. S. S. Purple, President.

The President brought before the notice of the Fellows of the Academy the deaths of Dr. Foster Swift and Dr. Joseph Kammerer. Committees were appointed to draw up suitable resolutions and present them to the Academy. Dr. John Erichsen, of London, was nominated a Corresponding Fellow.

Case of Multiple Abscess of the Liver.—Dr. Samuel W. Dana read before the Academy an interesting history of a case of multiple abscess of the liver. The main features of the case were as follows: The patient was a man, aged fifty-two. During the month of June, 1873, he complained of severe pain over the region of the stomach, which was accompanied with vomiting. This improved for a time, but returned with greater severity last fall. The case at that time showed the marked influence of malarial poison, characterized by chills every alternate day. Jaundice followed this malarial seizure, and was accompanied by an increase of pain over the liver. Physical examination showed the hepatic dullness to extend two inches below the level of the ribs. After this the patient began to improve, and the jaundice materially lessened, though the chills continued during the month of November. This improvement continued till the end of January, of the present year, when the patient again relapsed, but lingered till June 17th, when he died. About the first of June a tumor was detected below the ribs, which, as proved by the autopsy, was due to the formation of an abscess. When the *post-mortem* examination was made, the liver was found adherent to the abdominal parietes. Its lower margin extended two inches below the margin of the ribs, but it was smaller than normal. The right lobe contained an abscess two and one-half inches in diameter, and one-half inch deep. The spleen and other lobes of the liver were normal. The points of interest in the case are mostly involved in obscurity. The cause of the abscess was unknown. There was nothing to show that disease existed in the intestines, and there was no history of injury to the liver. In regard to the time the abscess formed, there was nothing definite made out. From the history of the case it would seem that the chills were first malarial, but afterward it became septicæmic; but the time of the latter change could not be ascertained definitely. In response to a call from the Chair, Dr. Finnel said much credit was due to Dr. Francis Delafield for pointing out the two varieties of hepatic abscess—one the result of a hepatitis, and the other the result of phlebitis of some vessels of the portal system. Dr. Finnel had found in many autopsies that there was hepatitis, and that it could be traced to injuries from truck-wheels and other causes of a like nature.

Dr. Finnel recalled the case of the late Dr. J. Kearney Rodgers, which presented some points in common with the case which Dr. Dana had read. Dr. Rodgers had been on Long Island, and on returning was seized with malaria. Some time afterward he died, and at the autopsy an abscess of the liver was detected.

Dr. Elisha Harris said he was very much interested in Dr. Dana's paper, and would like to ask if the diffuse abscess could not be accounted for by ante-infection. Dr. Dana said there was not found any part of the abscess which seemed older than the rest.

Prevention of the Formation of Milk.—Dr. Peaslee said that he had received from Dr. W. R. Wilson, U. S. Army, stationed at Fort Wayne, a communication in regard to the treatment of the breasts in cases where it was desirable to prevent lactation. Dr. Wilson wishes him to get the opinion of the Academy on the subject. Dr. Wilson's method consisted in strapping the breasts tightly after delivery, by means of strips of adhesive plaster. Dr. Peaslee said since his attention had been directed to the matter by Dr. Wilson, he had tried it in five cases of stillbirths, where it was desirable to suppress the milk. In all of the five cases the results were perfect. The method of using extract of belladonna had never been satisfactory, and the suggestion of Dr. Wilson was very important.

THE NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, June 23, 1875.

DR. EDWARD G. JANEWAY in the Chair.

Perforating Ulcer of the Stomach.—Dr. A. L. LOOMIS presented the stomach of a case which came under his observation, and stated the following clinical facts in connection with it: During the past nine years he had been in the habit of seeing a merchant, of about forty-six years of age, from time to time when he was out of health. The main disease that troubled the patient was a faucitis which would appear occasionally.

For four years he had lived with a friend of his, a physician, and in all that time had not once complained of any gastric symptoms. There was no hereditary predisposition, and the family history was in other respects good. He was of a thin habit of body, but exceedingly active. Not only was there no history of dyspepsia, but the patient had been a heavy eater. For four or five weeks previous to his illness he had been exposed to the influence of lead, and had been slightly affected with it.

The attack commenced on May 27th, with severe colicky pain in the abdomen, located at a point about two inches to the left of the umbilicus. This colic was attributed to the lead with which he was contaminated, and at the time not much danger was suspected. At 6 P. M. the pain became excessive, and shortly afterward Dr. Loomis saw him for the first time. The patient was then sitting up in a chair, and the pain was of a paroxysmal character, and partially relieved by pressure on the abdomen. Forty drops of Magendie's solution of morphia were given, and after two and a half hours considerable relief was obtained. No nausea was complained of, and there was no increase of temperature. When he was seen next morning, the pulse was 80 per minute, the temperature still normal, but the pain continued in the old spot. When pressure was made, the pain was increased, and there was also rigidity of the abdominal walls. This led to the suspicion of commencing peritonitis. While talking to the patient, he complained of nausea, and soon afterward vomiting began. In the evening the pulse rose to 120, and the abdomen became tympanitic; the pain also increased. The next morning, May 29th, the tympanitis increased, but the other symptoms remained much the same. Whenever the morphia was diminished, the nausea returned. At noon on that day the pulse became small and thready. Collapse set in, and the patient died next morning, fifty-eight hours after the attack. Six hours after death an autopsy was made, and the peritonæum was found to be thickened and pigmented at points. Adhesions were discovered between the liver and abdominal walls. Serum was found in the abdominal cavity, and in different places there were flakes of lymph. On the anterior portion of the stomach an ulcer was noticed about half an inch in diameter, having distinctly-marked edges. On opening the stomach, the mucous membrane was seen to be congested, and at the seat of perforation there was a cicatricial surface two inches in length by one in width. The perforation had its edges inverted and surrounded with a nodular mass. This nodular mass was in part made up of cells, characteristic of round-celled sarcoma. The pylorus and duodenum were distended. The liver, however, was normal. Dr. Loomis said that, although there was previous disease of the stomach, the patient had never complained of any gastric symptoms. If the peritonitis had been due to perforation, this perforation must have been small, as there was no sudden collapse, and the symptoms in the beginning were not sufficient to insure a diagnosis of peritonitis, but, when peritonitis did set in, it ran a rapid course.

Dr. JANEWAY thought the specimen looked like an old ulcer, where cicatrization took on a sarcomatous change. He had seen cases of peritonitis where at first the symptoms did not seem to indicate it. Dr. Loomis said the pain commenced at a point two inches to the left of the umbilicus, and at a point corresponding to the site of the perforation.

Uterine Fibroids.—Dr. FINNEL presented the uterus of a patient who died of pneumonia. The patient was a negro woman, but no history of uterine trouble could be obtained. On examination of the specimen the tumor was found to have involved nearly the whole of the uterine wall, and, on cutting it open, calcification was found in different places. Several other tumors were discovered, but they were smaller in size. Dr. Finnel said he presented the specimen to show how common this disease was in the African race.

Bloody Tumor of the Pancreas.—Dr. T. E. SATTERTHWAITE presented to the Society a rare specimen of bloody tumor of the pancreas. The history of the case was as follows: The patient was a man aged thirty-six years, and by occupation a clerk. His health had been good till 1867, when he had an attack of jaundice, which lasted a month. During 1871 he contracted syphilis, and had also another attack of jaundice, which continued for four or five months. Two years later, a third attack of jaundice came on, which lasted as long as he lived. He entered St. Luke's Hospital May 17, 1875, with a scratch on his lip, which bled freely regardless of styptics. The liver and spleen were considerably enlarged, but there were neither casts nor albumen in his urine. The patient was continually drowsy, and died on May 20th. Two hours before his death his condition was very good, but from that time he began to sink, and died from exhaustion.

Autopsy.—The intestines were found healthy, but ecchymotic spots were discovered along the course of the intestinal tube. The stomach and duodenum were congested. The pancreas contained a clot of blood which distended the organ beyond the normal size.

Dr. JANEWAY said that he had the patient referred to by Dr. Satterthwaite under his care for a time in Bellevue Hospital. He was at that time deeply jaundiced, and his stools were of the ordinary clay-color. He tried the influence of an emetic to see if it was possible in this way to obtain a discharge of bile into the intestines. The stools were cautiously examined afterward, but only a small amount was noticed. The emetic that Dr. Janeway used was apomorphia, which acts very satisfactorily. It was applied hypodermically. He said that he had examined the pancreas very carefully, and was unable to find any obstruction in the pancreatic duct. He was of the opinion that the enlargement of the pancreas was slow, and due to the rupture of a vessel. The cause of the hæmorrhagic state of the system resulted from the effect of the biliary acids on the blood, which in reality caused its decomposition.

Excrescence from the Penis.—Dr. Post presented a mass the size of a hen's-egg, which he removed from the penis of a patient who gave no history of venereal disease. It was simply a fungous mass, and showed no evidence of malignant disease. The patient had been suffering with the mass for three months. Dr. Janeway said that he had obtained good results from a solution of bichloride of mercury in collodion; the strength of the solution was 10 gr. of the bichloride to 1 ʒ of collodion.

Dr. Satterthwaite said that he had used a saturated solution of corrosive sublimate in collodion, and found it to be too active an escharotic. In one case it ate into the urethra. He had found on examination that the fungous growth was made up of nested epithelial cells, and in this respect resembled epithelioma.

Cancer of Stomach and Liver.—Dr. Janeway presented a specimen of cancer with the following history: The patient was a laborer aged forty, and entered hospital April 24, 1875. He was addicted to stimulants, but there was no hereditary history of cancer. The first symptom of the disease that he noticed was a tumor in the abdomen, but not painful, either on pressure or otherwise. He has noticed, however, that recently there was a failure of strength. Has never had any vomiting. On examination, the patient presented marked cachexia, and had slight jaundice. A tumor was discoverable in the abdomen, continuous with the liver, and four inches to the left of the middle lobe.

May 15*th.*—The patient complained of pain over the liver.

22*d.*—Diarrhœa set in, and afterward fluid was detected in the abdominal cavity.

June 2*d.*—Prolapse of the rectum took place.

5*th.*—The patient died. On making a *post-mortem* examination, the liver was found greatly enlarged, and stained with bile. The lymphatic glands in the neighborhood were infiltrated with cancerous deposit. The stomach contained a tumor situated so as not to interfere with the ingress of food, and for this reason it was supposed the patient did not complain of vomiting. On opening the stomach it was found to be filled with blood, but the mucous membrane covering the tumor was not involved. The liver was infiltrated for about two-thirds of its extent with cancer, but from the history of the case it was supposed to be secondary to that of the stomach.

Aneurism of the Aorta simulating Aneurism of the Innominate Artery.—Dr. JANEWAY also presented an interesting case of aortic aneurism, which was mistaken for aneurism of the innominate artery. The patient entered the hospital during February, 1871, and gave no history beyond that of intemperance. On examining him, a tumor, the size of a hen's-egg, was discovered in the region of the arteria innominata. This gradually increased in size, but no bruit could be heard. The patient was transferred to the surgical side for treatment. When the patient was next seen, the tumor had increased in size, and was growing upward. It was soft, and apparently contained fluid. When it was closely examined, it was found to pulsate. Considerable dyspnœa was caused, and, from the facts of the position of the tumor and its pulsating character, a diagnosis of aneurism of innominate artery was made. Nine days afterward the patient died, but five days before his death considerable hæmorrhage took place from the mass. At the autopsy it was found that the arch of the aorta was the seat of the aneurism. This aneurism had pushed the innominate artery out of its position, and had taken its place. It had also occluded the innominate vein, and displaced the sternal end of the clavicle. The tumor was six inches long, and the size of an orange. It began in 1871, and lasted four years. Dr. Janeway said this was the second case of the class that had come under his notice. The first one was diagnosticated to be aneurism of the innominate artery, and treated by ligature. The case which he had presented had at one time been under consideration for similar treatment.

Stenosis of the Mitral Valve.—Dr. JANEWAY also presented a heart which showed stenosis of the mitral valve. The patient was aged twenty, and gave a history of cardiac disease from childhood, but never had rheumatism. She suffered at times from severe attacks of dyspnœa, and during the past few weeks it had been so severe as to cause cyanosis. At the autopsy there was found stenosis of the mitral valve. The orifice was funnel-shaped, and only large enough to allow of the introduction of the little finger. The left ventricle was of normal size, but the left auricle, the right auricle, and the right ventricle, were hypertrophied.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, June 28, 1875.

DR. ELLSWORTH ELIOT in the Chair.

Placenta Prævia.—Dr. MONTROSE A. PALLEN read a paper on placenta prævia, which consisted of a summing up of the literature of the subject. He was in favor of partial or complete separation of the placenta, as offering the best chances for the patient.

Dr. JOHNSTON recited a case which he had recently been called upon to attend. The patient was bleeding very freely when he saw her, and he thought to check the flow by carrying his finger into the os uteri and separating the placenta from the womb. He found, however, that instead of checking the hæmorrhage, it increased it. He then carried his hand through the cervix, grasped the legs of the child, and in a short time delivered the patient. Since then the patient had done well and made a good recovery.

Bibliographical and Literary Notes.

ART. I.—*Practical Hints on the Selection and Use of the Microscope. Intended for Beginners.* By JOHN PHIN, Editor of the *Technologist.* New York: The Industrial Publication Company, 1875. Pp. 131.

THIS little work will be found of much practical value to those who are beginning the study of the microscope. It contains a description of the various instruments and their accessories, and directions for using them to the best advantage. Some useful information is given regarding the mode of preparing and preserving specimens. The chief design of the author is to spare amateurs and others the disappointment and expense that often attend their first experience with the microscope.

Art. II.—*Cyclopædia of the Practice of Medicine.* Edited by Dr. H. von Ziemssen. Vol. iii. *Chronic Infectious Diseases.* By Profs. Christian Bäumler, of Erlangen, Arnold Heller, of Kiel, and Otto Bollinger, of Munich. Translated by A. H. Nichols, M. D., William Ashbridge, M. D., J. G. Hindman, M. D., E. B. Bronson, M. D., and E. L. Keyes, M. D. O. H. Buck, M. D., Editor of American edition. 8vo., pp. xii.–672. New York: William Wood & Co., 1875.

The third volume of this valuable work having been issued, we shall proceed to give our readers the result of our examination of some of the leading topics contained therein. Under the head of "Chronic Infectious Diseases" a number of questions are discussed not ordinarily included in works on practical medicine. This volume may be divided into four sections: the first, including syphilis; the second, diseases caused by infection of poisons of diseased animals; the third, from bites and stings of poisonous though healthy animals; and, fourth, diseases occasioned by migratory parasites.

The first-named section, on "Syphilis," by Bäumler, occupies nearly one-half the volume, and may be considered a full and very complete description of that loathsome affection. The author believes it originated in the south of Europe, in the latter part of the fifteenth century, and does not charge its origin, as do so many Europeans, to the aborigines of America. He accepts the view that the disease is not constitutional primarily, or until the poison is reproduced and absorbed at the seat of the local affection, and divides it into four stages, namely: the *primary*, comprising the development of the local process of infection and the indolent glandular swellings;

the *secondary*, beginning six or eight weeks from the first appearance of the primary affection, when the blood-poisoning is at its height; the *tertiary*, attended by local affections caused by cell-growths, caseous degenerations, gummy deposits, ulcerations, and necrosis; and a *fourth* stage, characterized by confirmed marasmus induced by syphilis, frequently attended with amyloid degenerations. The changes mentioned as pertaining to the tertiary stage of syphilis are not regarded, as stated on p. 249, "as due to the direct influence of the syphilitic poison upon the tissues . . . . their peculiarity does not consist so much in the proliferation of cells as in the peculiar changes which the cells undergo in the course which they pursue—changes which depend upon the modified constitution imparted to the tissues by the antecedent syphilis." J. Hutchinson[1] and S. Wilks[2] make but two stages, describing all these permanent changes, in the third and fourth stages of the author, as *sequelæ*.

The author is able to give us but little that is new respecting the precise nature of the syphilitic poison, although his efforts in searching for all that is of much moment in the recent literature of the subject have apparently been very great. It is confessed that the changes induced in the humors of the body are little known—the leucocythosis, oligæmia, corpuscles of Lostorfer (recently discovered), and living organisms (such as discovered by Salisbury and Hallier), are shown not to be especially characteristic of syphilis. Cellular infiltrations are said to be characteristic of the local manifestation; although the cells themselves are not distinguishable from the white corpuscles, still, their development, arrangement, and course point certainly to new syphilitic growth, and distinguish it from every other.

In regard to the conveyance of the disease, Bäumler teaches that, excepting the semen, physiological secretions, unmingled with pathological discharges, or blood, are not vehicles of the poison. That the semen contains the poison is proved in the frequent infection of the offspring; but,

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[1] Art. "Syphilis" in Reynolds's "System of Medicine."

[2] "Guy's Hospital Reports," vol. ix., 3d series. Also p. 32 of "Cyclopædia."

"whether *the semen* of a man affected with latent syphilis may be the medium of contagion to the wife remains yet an open question" (p. 50). Authorities on both sides of the question are quoted, Porter and L. Parker being especially mentioned as taking the affirmative. We have had a case under treatment, of a lady who, about two months after marriage, presented a rash of roseola followed by other signs of syphilis. Pregnancy did not occur, nor did she notice any primary symptoms. Her husband claimed that he had never had any urethral discharge or primary sores, and had no ulcerations at the time of marriage; but, on examination some three or four months after marriage, ulcerations in the region of the perinæum were discovered. The lady herself showed no disposition to conceal any thing, and if any primary symptoms had been present in either case it would have been admitted; hence, it may with good reason be inferred that in this case infection did not arise from the excoriations, but from the semen, the local primary sore being situated high up in the vagina.[1] The author seems to question the fact of pathological discharges, unmixed with blood, giving rise to syphilis, although he is mindful of the light thrown upon the subject by John Morgan[2] and H. Lee.[3] He is supported, however, by Van Buren and Keyes in their very excellent article on syphilis.[4] The observations of Mr. Morgan[5] show quite conclusively that pathological discharges in syphilitic subjects are at least liable to transmit the disease. The author thinks that syphilis may be transmitted by means of vaccination lymph, although no admixture of blood may have taken place, explaining the occurrence on the supposition of Mr. Hutchinson and others, that the serum of the blood may exude (especially if much irritation exist) through the vessels into the vesicle and thus infect lymph with the poison. Van Buren and Keyes speak with positiveness on the innocuousness of the virus if blood be present, but counsel against the use of vaccine virus from children who are open to the least suspicion of syphilitic taint. The author alludes to one important point, namely, the possibility of syphilis being transmitted by inoculation from the dead subject.

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[1] For another case of probable syphilitic infection by means of the healthy semen, *vide* New York Medical Journal for November, 1874. Article by Isaac Smith, M. D.

[2] "On Syphilitic Gonorrhœa," *Medical Press and Circular*, January 17, 1872.

[3] "St. George's Hospital Reports," vol. vi., for 1873.

[4] "Diseases of the Genito-Urinary Organs, including Syphilis," p. 519.

[5] "Contagious Diseases."

There are those, Van Buren and Keyes among the number, who think inherited syphilis may exist for several years, or perhaps until the individual is full-grown, before special symptoms of the disease are noticeable; the author, however, distrusts these cases of tardy development, and doubts if they ever pass many months without showing the characteristic symptoms (i. e., if they are ever destined to appear).

The question may still be considered open, whether in latent syphilis there is a *permanent dyscrasia*, as advanced by Astruc; or whether the dyscrasia is only *temporary*, the poison being deposited in certain depots, thence affecting the general system after the lapse of a considerable time, as believed by Virchow. The author thinks that latency is an indication that the poison, although existing in the blood, does not exist in the fluids of the body in sufficient concentration to exert its special influence on the tissues. An increase of the poison, or an augmentation of the irritability of the tissues, makes the disease again manifest, except, perhaps, in those cases so difficult of explanation, in which no local manifestations have been observed for years, so that the blood can receive no new supplies of virus. In these cases he thinks the explanation of Virchow the only one tenable. Bäumler, in common with the majority of recent investigators, is a believer in the duality of syphilis and chancroid.

In order to treat the disease successfully, the author urges the necessity of a *long-continued* course of mercury; but in no case, he says, should it be administered in sufficient quantity to induce ptyalism. The course should at least extend for six or eight months if secondary symptoms have appeared, and for a considerable time after all indications of the disease have disappeared. Iodide of potassium is especially adapted to the tertiary stage, but we are told that cases treated with it are very apt to relapse after they are considered well and the treatment is suspended. If likely to be required for a considerable length of time, the dose of the remedy should be small at first, and increased as necessity requires. Dr. Miner, of Buffalo, advises the use of iodide of potassium in one-hundred-grain doses three times daily. Nearly or quite all the approved methods of treatment adapted to varied conditions are mentioned. We are of the opinion that, in very many of the cases of syphilitic taint that come under our observation, the mixed treatment of corrosive sublimate and iodide of potassium will prove more valuable than either singly. For the treatment of chancroid it is recommended to cauterize the sore, in order to destroy any possible admixture with virus from the hard chancre. Believing that the primary sore in true syphilis is purely local in character, the author advises to eradicate it when situated favorably—as on the prepuce; but thinks in the majority of cases the infiltration of the tissues is too deep for the destruction of the poison by caustics. A mercurial course is therefore advised on the occurrence of hard chancre. He believes syphilis is curable. Zeissl is reported[1] as having said: "If a man contract syphilis he will die syphilitic, and at the day of judgment his ghost will have syphilis!"

As may be inferred from the extent of the article (309 pages), sufficient attention has been devoted to all the questions connected with syphilis, and we may say the discussions are conducted with entire fairness.

Bollinger comes next in order, upon "Infection by Animal Poisons," treating especially of "Glanders," "Anthrax," —malignant carbuncle, malignant pustule—"Hydrophobia," and "Foot and Mouth Disease." The author, although quite young, has made diseases of animals a specialty, and writes with exceeding clearness upon the topics here considered. We have space only to notice the accounts of anthrax and hydrophobia.

Bollinger regards anthrax as properly belonging to the domain of *medical* pathology, in accordance with his view of its being an infection of the blood. Pollender and Branell, independently, within the last decade, in the blood of animals dead of anthrax, found masses of fine, rod-like bodies resembling vibriones, apparently of a vegetable nature, and pronounced by Davaine *bacteria*, or rather *bacteridia*, to distinguish them from the bacteria of decomposition, which are capable of motion. These were found by the last-named observer present in the blood in all cases, even before morbid symptoms developed. The author accepts the views of these observers, his own investigations, which have done much to elucidate the subject, corroborating theirs. The bacteria are found to exist in every case of the disease in man, at first in the local carbuncle, from which, after a few days, they insinuate themselves into the blood, although in less numbers than in animals. In the examination of the blood these bodies are liable to be overlooked, without great care. According to the descriptions of the author and Davaine, Cohn has recently systematically classified the bacteria of anthrax. He says they belong to the group *filamentous bacteria*, and to the species *bacillus*. Bollinger considers these little organisms the anthrax-poison itself.

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[1] *Vide* July number of this JOURNAL, p. 104.

Pasteur, H. Hoffmann, and F. Cohn, have demonstrated that bacteria possess a great chemical affinity for oxygen, and that they depend upon it for their life and growth. The author, making use of this fact, advances the theory that the general symptoms, such as dyspnœa, cyanosis, clonic spasms, dilated pupils, and asphyxia—in fact, symptoms of carbonic-acid poisoning—are due to the absorption of oxygen by the bacteria. This theory is supported by the results of *post-mortem* examinations, which reveal evidences of carbonic-acid poisoning.

The author considers the disease infectious somewhat after the manner of typhoid fever,[1] but not communicable directly from one animal or individual to another. He thinks the soil, if it contains an unusual quantity of decaying vegetable matter, together with an excess of moisture and heat, "furnishes the most favorable conditions of life for the poison;" but the special poison must exist before animals can contract the disease.

It may be assumed for anthrax, as well as in the case of certain other infectious diseases, that only such soil as is impregnated with the anthrax-poison, causes the disease, and that it does so as soon as it is in a favorable condition for the preservation and development of the virulent material; while, on the other hand, on the same soil, if there be no anthrax poison present, the disease never develops there."

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[1] *Vide* vol. i. of "Cyclopædia," or our notice of the same in the January number of the JOURNAL.

The disease is inoculable, and probably the poison is conveyed to healthy animals by means of insects. The poison, being deposited upon fodder and in stables, may be taken into the stomach or inhaled, and the disease contracted, and persons become inoculated in caring for stock thus affected. The dried bacteria remain virulent for a long time. The disease may be transmitted by inoculation of the blood of affected animals as well as discharges from the carbuncles, but it is said not to be transmitted to the fœtal circulation by the mother.

In the treatment of the affection prophylaxis is of the utmost importance. When the disease is once developed, the author lays great stress upon the necessity of energetic treatment of the local carbuncle; it should either be extirpated or incised crucially, following by thorough cauterization with carbolic or nitric acid. In the intestinal forms of anthrax, carbolic acid and quinine are recommended. In other respects the treatment is tonic and stimulant, with proper alimentation. The article covers over sixty pages, which are nearly equally divided between the description of its occurrence in animals and in man. Two figures of anthrax bacilli are given.

About eighty pages are devoted to the consideration of hydrophobia. The author is not a believer in its spontaneous origin, even in animals. In every instance it arises from inoculation of the special virus, usually in consequence of a bite from a rabid animal. He thinks it must be rare indeed when infection takes place by intermediate vehicles such as coitus, or the consumption of meat and milk of affected animals; but he is inclined to admit the possibility of the transfer of the poison by parasitic media. He does not believe that the bite of an enraged animal, or one in heat, otherwise healthy, is capable of causing hydrophobia. Hammond[1] has observed several cases (and quotes like observations in others) of the disease occurring in the human subject in consequence of the bites of healthy dogs in heat, although it is not shown that the dogs did not subsequently become rabid. Neither does the author think fear exerts any causative relation to the disease, although it may produce symptoms similar to those of hydrophobia. The distinction is drawn clinically between the actual disease and that produced by fear or anxiety. The summer season seems to exert no other effect than to favor a more free association of dogs and cats, and afford a better opportunity for biting.

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[1] "Diseases of the Nervous System," 1871.

The author disproves the view that hydrophobia is a *neurosis*, such as tetanus or hysteria, or a purely mental affection, although the poison acts especially upon the nervous centres. No light is elicited, as a result of chemical or microscopical examination, respecting the behavior of the poison within the animal economy. Bollinger is not positive whether it remains awhile latent at the point of inoculation, or whether it is constantly reproduced, but not in sufficient quantity to exert its poisonous influence for a time, or if so reproduced is partially neutralized by physiological processes. He seems to incline to the view of its constant reproduction, inasmuch as animals during the latent period of the disease may transmit it.

We learn nothing especially new in respect to the pathological anatomy of the nervous system in rabies. A congested and œdematous condition of the brain, medulla, and spinal cord is observed ; in some cases the ganglia of the sympathetic are softened ; also the sheaths of the pneumogastric and cervical nerves are sometimes inflamed at their origin. It is said, "It is hardly necessary to add, however, that individual observations of this sort possess no especial value until they have been confirmed by more complete investigation." Hammond[1] has found granular degeneration of the cortical substance of the brain, of the medulla oblongata, involving the nuclei of the pneumogastric, hypoglossal, and spinal accessory nerves, structural disorganization of the floor of the fourth ventricle involving the points of origin of the nerves distributed to the larynx and respiratory muscles, and "granular and fatty degeneration of the gray substance (of the spinal cord) and of the nerve-roots, together with nuclear proliferation of the neuroglia cells of the white substance." These investigations are passed unnoticed by the American editor. Marichetti's observations concerning the existence of vesicles beneath the tongue are said to be either accidental concomitants, or an intentional fraud.

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[1] *Vide* New York Medical Journal for September, 1874.

In order to promote prophylaxis, Bollinger recommends the indiscriminate slaughter of foxes and wolves in infected localities, a high rate of taxation on dogs, and, when cases of rabies occur, that all dogs should be muzzled for a time. Not believing in the spontaneous generation of hydrophobia, he opposes the view that muzzling contributes to its causation. It is stated that in Berlin, during nine years, when all dogs were required to be muzzled, there was not a single instance of rabies; while, in localities in which they roam at large unrestrained, the disease is common. He mentions, merely "as a matter of curiosity," the artificial blunting of the teeth, and the metallic caps recommended by some, to render the bite innocuous. When a person is once bitten, "the *prompt and thorough destruction of the virus* at its point of entrance" is of the utmost importance. The patient's mind should be kept tranquil and the injury alluded to as little as possible. After the disease is developed, chloroform and opium seem to be the only measures exerting any palliative influence. All "*coercive measures*" should be avoided, and the patient kept calm by kind treatment.

The section devoted by Bollinger to the "Infection by the Bite or Sting of Poisonous Animals" covers only twenty pages. Although these affections are clearly described, their account is rather more condensed than seems commensurate with the design of the work.

"Diseases from Migratory Parasites," by Heller, occupies a little more than a hundred pages. The affections enumerated in this class are the "Echinococcus," "Cysticercus Cellulosæ," and "Trichinæ." The first named is the larval condition of the tænia echinococcus, a small tape-worm found in the upper portion of the intestines of dogs. The second is the larval condition of the tænia solium, the tape-worm inhabiting the intestines of man. It is only these larval conditions that are here described. We should be glad to follow the author in his interesting clinical description of trichina, but our remarks are already too much extended. Heller seems to think all *special* methods of treatment are of little avail; hence prophylaxis is all-important. A number of figures are introduced, illustrating the text in each of the articles.

This volume is of especial interest, inasmuch as it furnishes the most complete account with which we are familiar of many of those rare affections which it is quite important every practitioner should understand. While the title "Chronic Infectious Diseases" will hardly apply to all the diseases herein described, yet the various affections are arranged, perhaps, according to as perfect a system as can well be suggested. There are not very many typographical errors in the book, but we notice the dose of corrosive sublimate pretty large in one place; doubtless "ounces" is written for drachms (p. 290, second line from bottom).

The translation and general style of the volume comport well with the preceding issues.

Art. III.—*Manual of Pathological Anatomy.* By C. Handfield Jones, M. B. Cantab., F. R. S., F. R. C. P., Physician to and Lecturer on Clinical Medicine at St. Mary's Hospital; and Edward H. Sieveking, M. D., F. R. C. P., Physician to St. Mary's and the Locke Hospitals, Physician Extraordinary to the Queen, Physician in Ordinary to the Prince of Wales. Second edition, revised, enlarged and edited by Joseph Frank Payne, M. B. Oxon., F. R. C. P., Fellow of Magdalen College, Oxford, Assistant Physician to and late Demonstrator of Morbid Anatomy at St. Thomas's Hospital. London: J. & A. Churchill, 1875.

The first edition of this book appeared in 1854. Since that time there have been so many important changes and discoveries in the field of pathological anatomy that a thorough revision of it was necessary to bring the work up to the requirements of the present day. The task of revision has been most ably accomplished by Dr. Payne, under the immediate superintendence of the original authors, who express themselves entirely satisfied with his labors. All the recent treatises on pathology have been consulted, and a vast amount of new material, both original and selected, has been added in order to render the volume complete up to the date of publication. Many new illustrations have been added, and there is abundant evidence of the pains that have been taken to make the manual a reliable guide for the student of pathology. Our readers are already familiar with the general plan pursued in the work, and after a careful examination of the new edition we are able to pronounce the manual all that is claimed for it by its distinguished authors. It well deserves a place among the standard text-books on pathology, and will be found equally adapted to the wants of the student for systematic reading, and of the practitioner for reference.

Art. IV.—*Compendium der neueren medicinischen Wissenschaften.* Von Dr. Bernard Kraus, Chef-Redacteur der *Allgemeinen wiener medicinischen Zeitung.* Wien, bei Moritz Perles, 1875, 851 S.

This is a compendium of the modern medical sciences by Dr. Kraus, whose long experience as chief editor of the *Vienna Medical Journal* has specially fitted him for the compilation of such a work. Twelve subjects are treated, viz.: thermometrie, use of the sphygmograph, percussion and auscultation, ophthalmology, microscopy, urology, laryngoscopy, anomalies of speech, otology, electro-therapeutics, hygiene, and toxicology. The work is written in a compact and lucid style, and, while there is nothing superabundant, each subject is treated in a very complete manner. Now that we have such a valuable work as the above, we hope to find less ignorance among physicians on those subjects than is the case at present. How many practitioners are to-day ignorant of the value of the microscope and of the thermometer in practice? We were lately told by a practitioner in this city that 140° Fahr. was a frequent temperature in children.

After such an exhibition of knowledge we need not say any thing more of the necessity of a work on the modern medical sciences suitable for the general practitioner. Such a work is that by Dr. Kraus, and, if the same necessity exists in Germany as here, we must congratulate him on producing a work which, if studied, will prove of very great service.

ART. V.—*Manual of Comparative Anatomy and Physiology.* By S. MESSENGER BRADLEY, F. R. C. S., Senior Assistant Surgeon, Manchester Royal Infirmary. Third edition. Philadelphia: Lindsay & Blakiston, 1875.

THIS useful little treatise was originally intended for the use of students preparing for examination, but it has been so improved in the later editions that it is now one of the most complete, accurate, and comprehensive manuals on the subject of comparative anatomy and physiology. The numerous illustrations, which are drawn with much care, tend greatly to elucidate the text.

ART. VI.—*The Management of Eczema.* By L. DUNCAN BULKLEY, A. M., M. D. Pp. 22. New York: G. P. Putnam's Sons, 1875.

THIS is an able little essay on the management of a disease which sometimes proves very obstinate to treatment. The rules for treatment are based on large clinical experience and correct views of the nature of the disease, and are very clearly laid down. We can recommend the essay as an excellent guide to the numerous physicians who have occasion to treat eczema.

BOOKS AND PAMPHLETS RECEIVED.—On the Physiology of General Paralysis of the Insane, and of Epilepsy. By George Thompson, L. R. C. P., London, Medical Superintendent of the Bristol Lunatic Asylum. Reprinted from the *Journal of Mental Science*, January and April, 1875.

Proceedings of the New York Academy of Medicine at the first Stated Meeting held in the Hall of the Academy, No. 12 West Thirty-first Street, May 20, 1875. New York: D. Appleton & Co.

Position, Pneumatic Pressure, and Mechanical Appliance, in Uterine Displacements. By Henry F. Campbell, M. D. Reprinted from the *Atlanta Medical and Surgical Journal.*

Dugas's "Pathognomic Sign of Dislocations of the Shoulder-Joint." By W. T. Briggs, M. D. Reprinted from the *Nashville Journal of Medicine and Surgery.*

Inaugural and Anniversary Addresses delivered before the Medical Society of the State of New York, at its Sixty-ninth Session, held in Albany, February 2 to 4, 1875. By the President, George Jackson Fisher, M. D. New York: G. P. Putnam's Sons.

Transactions of the Ninth Annual Meeting of the Medical Association of the State of Missouri, held at Jefferson City, April 20 and 21, 1875.

Albany Medical College, Medical Department of Union University. Annual Catalogue and Announcement. Forty-fifth Session, 1875.

On the Use of Warm and Hot Water in Surgery. By Frank H. Hamilton, M. D., Surgeon to Bellevue Hospital. New York: G. P. Putnam's Sons, 1875. Pp. 6.

Treatment and Removal of Fibroids from the Uterus by Traction. By Thomas Addis Emmet, M. D., Surgeon to the Woman's Hospital, New York. New York: G. P. Putnam's Sons, 1875.

Medical Addresses. By Benjamin E. Cotting, A. M., M. D., Harvard, President of the Massachusetts Medical Society, etc., etc. Boston: David Clapp & Son, 1875. Pp. 123.

Bad Health; its Physical and Moral Causes in American Women. By James E. Reeves, M. D., Wheeling, West Va. Read before the American Public Health Association, November, 1873.

Anæsthesia and Anæsthetics. By J. W. Trader, M. D., Sedalia, Mo. Reprinted from the Transactions of the Missouri State Medical Society.

Iridotomy and its Applicability to Certain Defects of the Eye. By A. W. Calhoun, M. D., Professor of Diseases of the Eye and Ear, in the Atlanta Medical College. Reprinted from the *Southern Medical Record.*

Miami Medical College of Cincinnati. Sixteenth Annual Announcement. Session of 1874–'75.

Annual Report of the Board of Health of the City of Pittsburg for the Year 1874. Pp. 128.

Sixth Annual Announcement of the Woman's Hospital Medical College of Chicago, Ill. Session of 1875–'76.

Annual Announcement and Catalogue of the Missouri Medical College, Session of 1875–'76.

Reports on the Progress of Medicine.

SURGERY.

PREPARED BY SAMUEL B. WARD, M. D.

Another Extirpation of the Larynx.—This operation was performed by Prof. Bottini, in the hospital at Novara, upon a patient thirty-four years of age, who had for some time suffered from attacks of orthopnœa from mechanical obstruction in the larynx. In August, 1874, the dyspnœa was so urgent as to demand laryngotomy in the crico-thyroid space; this afforded relief, and a tube was left in the opening. Subsequent attempts were made to free the larynx from the morbid growth which filled it, by means of the galvano-cautery, and dilatation with laminaria-tents; but in vain. On February 6, 1875, the larynx was extirpated, no anæsthetic being given.

An incision, about two inches long, was made from the centre of the hyoid bone down to the opening in the larynx; then, by means of horizontal incisions to the right and left, two flaps were formed, dissected up, and turned outward. The anterior part of the larynx was then carefully laid bare, the edges of the wound being held apart by hooks, and the connection between the larynx and œsophagus was severed by means of the fingers and blunt instruments. This part of the operation was rather difficult, in consequence of the shortness and thickness of the patient's neck, and of his continued attempts to expectorate. These attempts were so violent that the patient, three or four times during the operation, expelled the canula with the sputum. It was found impossible to at once remove the larynx by cutting it free from the trachea below and the hyoid bone above, and the process had to be suspended several times to allow the patient to relieve himself by coughing up the mucus and blood, which escaped into the trachea notwithstanding all the care that was used to prevent it. Several arteries, especially the two superior laryngeal, were tied, and the galvanic cautery was applied to others.

On the fifteenth day the patient could swallow fluids, and semi-fluid food; the paroxysms of cough had become rare and slight; the wound had healed for the most part by the first intention, notwithstanding an attack of erysipelas lasting from the fifth to the fifteenth day; he slept fairly well at night; and altogether his condition was promising.

No account is given of the nature of the disease for which the operation was performed; but Dr. Marbelli, surgical assistant at the hospital, who gives this brief history, intimates that a complete account of the case will be published by Prof. Bottini.—*Gazetta delle Cliniche* in *London Medical Record*, April 28, 1875.

Resection of the Knee after Gunshot-Wound of the Joint.—It is well known that the majority of military surgeons recommend amputation in cases of penetrating gunshot-wound of the knee-joint, with injury to either the tibia or femur. Laying the joint widely open has been advised by Surgeon J. Moses, U. S. A.; but the practice has not been successful in any considerable number of cases. Langenbeck advocates keeping the limb perfectly quiet in an immovable plaster-of-Paris splint; and statistics show that out of eighteen cases thus treated, during the Bohemian War of 1866, eleven recovered. This is a much better result than can be shown for any other course of treatment. Resection has not been remarkably successful in field-practice. In the Crimea, and the Schleswig-Holstein campaigns, it failed entirely. In the Austrian army, during the Italian War of 1859, three cases recovered out of eight thus operated upon. The Surgeon-General U. S. A. reports eleven operations during our recent war, with two successes; but the authenticity of one of the latter is considered doubtful.

The *London Medical Record*, of June 16th, contains an abstract of the histories of two more successful cases, one operated upon by Dr. Meusel, of Gotha, and the other by Prof. Nussbaum, and both reported by the former gentleman in the *Berliner Klinische Wochenschrift.* The subject of the first operation was a man of twenty-five years, who had been struck by a ball from a revolver, fired at a short distance. The ball entered about a quarter of an inch below the patella, passed through the ligamentum patellæ and downward into the upper extremity of the tibia, forming a canal, with smooth walls, at the bottom of which it was so firmly embedded that all efforts at extraction failed. No swelling or pain when first seen. On the supposition that the joint was intact, Dr. Meusel put the limb up in gypsum bandage at once. On the sixth day inflammation set in, and on the ninth day the joint was excised. A transverse incision was made below the patella (which latter was not removed); a slice of the lower end of the femur, measuring an inch and six-tenths in thickness, was sawn off; a thin slice was removed from the upper surface of the tibia, exposing the bullet, which was taken out with the forceps, together with a small piece of the clothing. On examination of the joint during the operation it was discovered that the capsule had been wounded by the projectile; that the joint contained pus; and that the tibia had not been splintered. Firm union occurred at the eighth week, and the patient was discharged at the end of six months, cured, and with two inches shortening. The patella remained movable, and could be pulled up by the quadriceps extensor muscle.

In the second case Prof. Nussbaum performed resection within a few hours after the injury had been received. The operation was made by a transverse incision across the front of the joint, and the patient made a good recovery, with shortening of about two inches and four-tenths.

OBSTETRICS.

Summary of One Thousand Consecutive Obstetrical Cases in Practice. By Fife Fowler, M. D., F. R. C. P. S., Kingston, Canada.—[Canada Lancet, July, 1875.]

The following summary is presented in the hope that it may prove of interest to the profession at large, and that in conjunction with papers of a like character it may add somewhat to the knowledge of this department of medical science. This summary does not require many explanatory remarks. Attention will no doubt be directed to the mortality of children in the breech, footling, and turning cases, which must be admitted to be large, particularly so when compared with lists furnished by those who advocate turning in preference to the use of the forceps; but to the author of this paper, head-last cases have always appeared fraught with dangers to the child—dangers which, in the majority of cases, cannot be avoided. It is also to be remarked with reference to the cases of undue retention of the placenta that they almost all occurred in cases in which no skilled assistance was at hand during the birth of the child, and the case of longest duration occurred on a part of an island which was not very accessible.

Regret has to be expressed that no reliable statistics could be furnished bearing on the mortality of females in childbed:

Of 1,016 children born, 533 were boys and 483 girls. 120 boys and 117 girls were born between 12 noon and 6 P. M.; 120 boys and 101 girls were born between 6 P. M. and midnight; 148 boys and 124 girls were born between midnight and 6 A. M.; 145 boys and 141 girls were born between 6 A. M. and 12 noon.

Among these were sixteen twin cases, comprising 16 boys and 16 girls. In six cases both children were boys; in six cases both children were girls; in ten cases both children were born alive; in two cases both children were born dead; in four cases one born alive.

The presentation was natural with respect to both first and second child in four cases; but in one of these cases the first child had to be delivered by instrumental means (craniotomy having been performed), and the second child by turning, and in another of these cases the forceps had to be employed.

Among the twin cases there were six breech presentations, viz.: 3 of the first child, 1 of the second, and 1 of both children; 4 of these were boys and 2 girls.

There were five footling cases—4 in the case of the second child, and 1 of the first; 3 of these were girls, and 2 boys.

There were three cases where the second child was born with face to pubis.

There were in these twin cases two children born, each having one hand along the side of the head, and one having both hands in this position, and one case was complicated with partial placenta prævia.

In the thousand cases there were twenty-three cases of breech presentation (12 boys and 11 girls); of these there were born dead, 5 boys and 7 girls.

There were thirteen cases of foot presentation (9 boys and 4 girls); of these there were born dead 4 girls and 3 boys.

Arm presentation, four cases (2 boys and 2 girls); first case, both arms found in vagina (embryotomy); second case, born alive after turning; third case, born dead after turning; fourth case, born dead after turning (complicated with prolapse of cord).

One case of shoulder presentation; born alive after turning; twenty-three cases of face to pubis; two cases of brow presentation; five cases where one or both hands were along the side of the head; three cases of partial placenta prævia.

There were two hundred and twelve cases where labor was easy and lasted less than three hours; 105 of them were boys and 107 girls.

There were ninety-seven cases where labor was tedious, lasting more than eighteen hours; 56 boys and 41 girls comprised these cases. In these tedious labors the os was rigid and slow in dilating in forty-six cases; membranes ruptured early in seventeen cases; outlet narrow in fourteen cases; cord short or round the neck in ten cases; child large in nine cases; os retroverted in seven cases; membrane rigid in three cases; face to pubis in three cases; upper strait narrow in one case; hand along side of head in one case; inertia of uterus in one case.

Premature births, twenty-seven cases (17 boys 10 girls); fifteen cases at seven months; ten cases at eight months; one case at six months; three cases of twins.

Stillborn children, forty-eight cases (28 boys, 20 girls); where children showed evidence of having died *in utero*, thirteen cases; born dead after breech presentation, twelve cases; born dead after foot presentation, seven cases; born dead after funis presentation, five cases; when born prematurely, seven cases; in cases of twins, eight cases; after placenta prævia, one case; after convulsions and use of forceps, one case.

Operative Cases.—The forceps were used in nineteen cases (13 boys and 6 girls); of these 14 were born alive and 4 dead.

In the forceps cases there were found to be, narrowness of the outlet in six cases; tedious labor five cases; inertia of uterus in three cases; convulsions in two cases; face to pubis and large child in two cases; partial placenta prævia in one case.

Craniotomy was performed in three cases, and embryotomy was performed in one case. Turning was performed in four cases; of these, three children were born dead.

Ante-partum hæmorrhage occurred in ten cases; accidental hæmorrhage in six cases; and unavoidable (placenta prævia) in four cases.

Post-partum hæmorrhage occurred in twenty-four cases; after quick labor with inertia in sixteen cases; adherent or retained placenta in five cases; hæmorrhage was concealed in four cases; after tedious labor in one case; after mental excitement in one case; after hour-glass contraction in one case; only one of these cases proved fatal. In this case before assistance arrived the woman had been dead half an hour, the placenta was blocking up the vagina, and the uterus was distended.

Puerperal convulsions; two cases, both occurring before delivery, the forceps were used in both cases followed by recovery.

Undue retention of placenta, from inertia of uterus, nine cases; os contracted round placenta, seven cases; placenta adherent, five cases; in uterus, free but os contracted, four cases..

Length of time retained: 1 hour, nine cases; 2 to 4 hours, eight cases; 5 to 9 hours, five cases; 12 hours, one case; 14 hours, one case; 72 hours, one case.

Abnormal condition of children when born: acephalous children, two cases; where arm had been amputated *in utero*, leaving a good stump, one case; spina bifida, one case; hare-lip, one case; cleft palate, one case.

Case of Ovariotomy, complicated with Pregnancy. Cæsarean Operation; Cure. By Thomas Hillas, M. R. C. S., Eng.—[Australian Medical Journal, February, 1875.]

At a meeting of the Medical Society of Victoria, held December, 1874, the following case was related: Mary McC., aged twenty-four years, single, was admitted to the Ballarat District Hospital, June 4, 1872. The history of her case was peculiar. She believed that she became pregnant in March, 1871, and, not wishing to be confined in the district in which she lived, she sought admission to the lying-in-ward of the Ballarat Benevolent Asylum. She was admitted there in November, 1871, and, after staying there until the following June, a consultation of the honorary staff was called, and she was discharged, her case being deemed ovarian dropsy, and not pregnancy. On her admission to the hospital she was examined by the resident surgeon, and subsequently by the honorary surgical and medical staff, all agreeing that she was suffering from ovarian dropsy, and that it was a suitable case for operation. On June 13th, assisted by the honorary surgeons, Messrs. Nicholson and Whitcomb, and the resident surgeon, Mr. Owen, and the honorary medical staff, the patient being under chloroform, I commenced the operation, by an incision midway between the umbilicus and pubes. On arriving at the peritonæum, I made a small opening into it, when out spurted a large jet of venous blood which the pressure of the finger controlled. I came to the conclusion that I had wounded, unwittingly, a gravid uterus, and, feeling sure of this, I extended the first incision upward to the umbilicus, when a large uterus rolled out on to the thighs, and the ovarian sac protruded. This was tapped, and about eleven quarts of fluid were drawn off; there were but few adhesions, which were easily broken down, and there was no hæmorrhage. The sac contained about a dozen small cysts, but, the external wound being large, there was no occasion to tap them. The pedicle was short and thick, and, after being tied firmly with a double whipcord ligature, the clamp was securely applied, and the pedicle divided, the ends of the double ligature being tied over the ends of the clamp. Now came the difficulty. The uterus was all this time lying on the thighs, with a fœtus in it, and a wound through its muscles, probably into the placenta. Some of the by-standers advised that the wound in the uterus should be sewn up, and that organ replaced in the abdomen, but seeing that labor must come on soon, and that the rupture of the uterus would most likely occur at the seat of injury, I personally decided to perform the Cæsarean operation, as being the most likely means of giving the patient a chance to recover. The uterus was incised to about five inches, and the placenta and a fœtus, alive, and well developed, at about the eighth month of gestation, extracted. I then stitched up the wound in the uterus, with about nine or ten silver-wire sutures, carefully tucking the cut ends down into the incision. Immediately on completing this the uterus contracted firmly. I then sewed up the wound in the abdomen with deep and superficial stitches, the deep stitches including the peritonæum, leaving the clamp at the lower margin of the wound, and a good deal dragged upon. The right ovary was the one affected, and the patient measured sixty inches round the abdomen before the operation. The sac and its contents, after removal, weighed thirteen pounds, and are preserved in the hospital dispensary. The patient vomited for about forty-eight hours after the operation, having been an hour under chloroform. This was relieved by morphia and ice, and on the fourth day all unfavorable symptoms abated. There was a discharge of pus from the lower portion of the wound, which ceased in about a fortnight, and then it completely healed. She was discharged, cured, at the end of six weeks. On July 3d, a month after the operation, she menstruated moderately for four days, and again on August 28th. I have seen her several times since, and she is in perfect health.

A Complicated Twin Labor. By H. G. Landis, A. M., M. D., Niles, Ohio.—[Philadelphia Medical Times, July 3, 1875.]

At 11.45 p. m., of November 5th, I was called to deliver Mrs. S., aged twenty-nine, fourth pregnancy, in labor since 8 a. m. An illiterate midwife in attendance had become alarmed at an unusual delay, viz.: the child's head had been born for an hour, and there was as yet no inclination of the body to follow, although the pains were powerful. On introducing a finger into the vagina in search of an axilla, a second head was found on the pelvic floor, in immediate contact with the thorax of the first child, and in a directly transverse position, the anterior fontanelle being nearly opposite and below the right tuber ischii, the posterior fontanelle a little below the left tuber. The anterior and already-born head was covered by very thick membranes, which were divided by scissors and peeled back. During several pains this head was observed to be immovable—not inclined to yield to traction. Neither could the posterior head be pushed upward, but was perceptibly driven toward the outlet. Following this indication, two fingers were inserted in the vagina as far as possible, and the perinæum drawn down during a pain. At the same time the anterior head was pulled forward and up over the pubes. The second pain brought the posterior head so far down that it could be seen with the same membranes as tightly stretched over it as with the first head. These were again divided, and the succeeding pain drove the second head through the vulva. The rest of the child followed at once, and was followed by the anterior child. The placenta came away with light traction in six minutes. It was large, with two separate cords. The chorion and amnion were common. The children were both female, of the same size, and weighed each five pounds. The second head measured four and a half inches in the occipito-frontal and three and three-quarter inches in the bi-parietal diameter. In passing down it had pressed a groove in the chest of the first child, the sternum being flattened against the vertebræ. If the vagina had been less capacious, dismemberment and evisceration of the anterior child might have been necessary. The second child is living and hearty at this date, and the mother made a good recovery. This accident seems to be rare, and indeed incredible if the case were under professional guidance from an early period of labor. Neither Cazeaux nor Meadows mentions it. Churchill records similar cases, and Leishmann mentions it fully.

Translations.

Treatment of Eclampsia.—It is well known that various theories are still held in regard to the cause of eclampsia in females during pregnancy, parturition, and the lying-in state. Frerichs and Litzmann ascribe it to an intoxication of the blood by the urinary ingredients, or the products of their decomposition; on the other hand, Traube and Rosenstein take the view of an acute œdema, with constant cerebral anæmia. A third theory, namely, that the convulsions are the consequence of reflex irritation during the parturient process, has lost its significance, since we know that eclampsia can also occur without the latter. Lastly, according to Courvoisier, the convulsions are due to a diminution of the albumen in the blood.

Without declaring his partiality for either theory, Jacquet maintains that his plan of treatment is rational alike for eclampsia having uræmia and acute cerebral œdema as a cause. His reasons are—in cases of uræmic origin, theory indicates three ways by which the cause can be removed—either by preventing the formation of carbonate of ammonia, by making it inert through neutralization, or by eliminating it from the system. But experience teaches that this substance can leave the system only through the kidneys and skin. Energetic diaphoresis has long been employed in the treatment of diffuse nephritis when the renal function has been disturbed, but in eclampsia it has not produced the desired results. According to Traube's and Rosenstein's theory, the cause would seem to demand both the removal of the acute œdema and a lowering of the aortic pressure. The former can only be accomplished by increased activity of the skin, for in eclampsia we cannot rely either upon the intestines or kidneys; furthermore, the quantity of water removed by transpiration of the skin can be increased artificially to about eight times the normal quantity. The intensity of aortic pressure depends on the cardiac impulse, on the fullness of the vessels, the degree of afflux of blood to the capillaries, and the amount of the secretions. The most reliable and rapid agent for the diminution of arterial pressure is venesection, but this will be resorted to in few cases, because of the usual hydræmic condition; and internal remedies (digitalis) act too slowly; we are, therefore, referred to a stimulation of the secretions, and especially of the skin. According to Jacquet, this plan is always effective, and practice proves that in most cases the convulsions cease as soon as the patient perspires profusely. His method is the following: The entire body, having been enveloped in a linen sheet which has been dipped in water of a temperature of 75° Fahr., is wrapped in a large flannel blanket; the head remains free and is covered with ice compresses. If the labor is far advanced, each lower extremity must be separately enveloped to prevent exposure when birth takes place. Ten minutes after the envelopment, the skin reddens, and in about one hour a profuse perspiration begins, which continues as long as the patient is enveloped, and is most profuse during the first three or four hours. This treatment causes no interruption in the process of gestation or in labor, nor does it influence the puerperal state unfavorably. Soon after the patient perspires, the convulsions diminish in number and intensity, and the patient falls into a quiet sleep. The simultaneous administration of chloroform, morphine, opium, or chloral, is not contraindicated. The patients have never expressed discomfort even when wrapped up for a longer time, and no effect on the life of the child has been observed.—*Berl. Beiträge z. Geburtshülfe u. Gynäcol.—Memorabilien.* E. F.

On the Etiology and Nature of Scurvy.—Before the Académie de Médecine M. Villemin read an interesting paper on this subject. Having enumerated the numerous causes to which the occurrence of scurvy has been ascribed, he reviewed more especially those to which greater prominence is given as etiological factors. He maintains that cold cannot be considered a cause, since numerous epidemics have occurred on ships in equatorial regions, and some navigators have even considered heat as the cause of the malignancy of the affection; on land it has also frequently occurred in overcrowded situations during the great heat of summer. Nor can the disease be ascribed to moisture, for Lind never observed it on the ocean. It has also appeared on many occasions in individuals who had subsisted on salted provisions. The author emphatically denies that abstinence from vegetable food can engender scurvy, and in support of his opinion cites numerous epidemics on sea and land when there was no deprivation of succulent vegetables; he shows, on the contrary, that individuals have been deprived of this kind of food for a long time without detriment to health. Indeed, fresh vegetables, anti-scorbutic plants and fruits, have acquired an undeserved reputation in the treatment of this malady. It has been shown that scorbutic patients have recovered with rapidity after landing, though their diet remained exclusively the same as on board ship (bacon and salt beef, etc.).

The marvelous change that occurs in patients after landing has been known for a long time, though it could not be attributed to any special cause. According to M. Villemin, disembarkment acts favorably by removing the patients from the influence of a morbid focus aboard ship. The case is similar in land-scurvy, which resists all remedies as long as the patients remain in the locality where they contracted the disease. The author states that scurvy is never sporadic, but always epidemic or endemic. He does not hesitate to regard it as the effect of a particular miasm; it resembles typhus, in that it attacks crowded populations, as those in barracks, vessels, hospitals, etc. Usually it is limited to small localized epidemics, but in certain years, without ascertainable cause, it propagates in the manner of great epidemics, invading entire countries and attacking individuals whose hygienic conditions may be of the most diverse character. The majority of observers of the sixteenth and seventeenth centuries have declared that scurvy is contagious, but have not presented facts in support of their opinion. Villemin, however, cites many examples which are irrefutable—thus, the transmission of the disease to Parisian soldiers by troops from northern camps where scurvy prevailed, then its spread in the hospitals, etc.

While contending that scurvy owes its existence to a specific miasmatic principle, Villemin admits the influence of certain adjuvant causes in its production and extension, such as debility from disease, destitution, excessive fatigue, insufficient nourishment, confinement, etc. In conclusion, the etiological analogies of the two affections, typhus and scurvy, are compared. The frequent coexistence of these two diseases would lead to the supposition of a common origin.—*Gaz. Méd. de Paris*, No. 34, 1874. E. F.

On the Intestinal Juice.—The chemical and physiological properties of the intestinal juice have been studied by many physiologists, but the results arrived at by them (Frerichs, Bidder, Schmitt, Thery, Moreau, and Vulpian) are far from being precise. The juice is considered to have an alkaline reaction, and all observers have obtained it by opening the intestine and stimulating the secretion by means of an acid; or, still better, by ligating the extremities of a loop of intestine, then emptying it by pressure and returning it into the abdomen of the animal; after several hours, an alkaline liquid is thrown out from the effects of this manipulation. M. Moreau has obtained from 200 to 250 grammes of alkaline liquid from a ligated loop of intestine, after having tied all the nerves which terminated in it. M. Leven, before the Société de Biologie, October, 1874, maintained that all these procedures conduce to cause the discharge into the intestine of an alkaline liquid which is not the contents of the intestinal glands, but is derived from the blood-vessels, and proposed to show that the intestinal juice is acid, not alkaline. This is a matter of great physiological interest, for then the stomach and intestine cease to be two distinct grounds for digestion. If the intestine secretes the same acid juice as the stomach, it can be assumed that the stomach begins the digestive process which is completed in the intestine, and hence that the latter is the true seat of digestion. The author also thinks that perhaps the work attributed to the secretion of the pancreas is supplanted by that of the intestine. When the intestine of an animal which has died without any intestinal lesion is examined, its secretion is usually found to be acid; it is sometimes neutral, but not alkaline. Physiologists thereupon resorted to the hypothesis that the acidity was caused by the gastric juice, which was sufficiently strong to render acid the pancreatic and intestinal juices and the bile. But it is found that in an animal that has fasted for twenty-four hours the intestinal juice is still acid; hence this hypothesis is untenable, and it was necessary to resort to an equally fallacious theory, conceived by Blondlot and sustained by Lehmanns, which has been refuted by Becker and Claude Bernard, namely, that the acidity is due to conversion of sugar in the intestine into lactic acid. Th. Leven disproves this theory by the following experiments: If five grammes of glucose in thirty grammes of distilled water are administered to an animal fasting, all the glucose has disappeared after twenty minutes. If thirty grammes of starch mixed with 150 grammes of distilled water are given to a dog, and the animal killed after one hour, the starch has almost entirely traversed the intestine, and there is not the slightest trace of sugar either in the stomach or intestine; two hours after, sugar is found in the intestine and in the blood of the portal vein; five hours after, 80 grammes of starch in 150 grammes of water have arrived at the extremity of the small intestine and filled the first third of the large intestine; the mucous membrane is dry, and has a neutral reaction. The sugar is rapidly absorbed; the glucose enters the blood immediately after forming, and is not decomposed in such a manner as to render the intestinal liquid acid. The starch dries the intestine; it is slowly transformed into glucose, which is rapidly absorbed. It can also be demonstrated that an infusion of the small intestine in 250 grammes of water gives an acid reaction after five minutes. Hence, if the intestinal juice were alkaline, the infusion would have the same reaction, especially as the intestinal blood-vessels could impart only an alkaline reaction to the water.—*Gazette Médicale de Paris*, No. 43, 1874.

Use of Water in Typhoid Fever.—Dr. A. Luton, of Rheims, submits the patient to an *absolute* diet. The only drink permitted is water, which may be cooled with ice, and any quantity is allowed. At first the water is drunk with avidity, then with moderation, and at last with a certain degree of satiety. It is sometimes vomited at the commencement, but tolerance is soon established. Under its influence, the stools are at first quite abundant, then they become less frequent, are less fetid, and finally there is constipation.

The duration of the treatment is subordinate to the general progress of the disease, varying from four to eight days, taking the fever as it usually runs. In treating the *enteritis*, however, for which the remedy is especially intended, three or four days may suffice, after which the alimentation is gradually improved.

The theory of this treatment is easy to comprehend. It depends upon the fact of the rapid alteration of the alimentary substances, and especially of the sugars and feculæ in contact with the diseased surfaces, and the products which play the *rôle* of ferments, which they furnish. Acrid, acid, and putrid substances result from this alteration, and increase the inflammation of the stomach and intestines.

These decompositions may be artificially produced by immersing animal membranes, a piece of typhoid-fever intestine, for instance, in a saccharated fluid. Alcoholic fermentation immediately commences, and in regular course follow the acetic, lactic, or butyric, and putrid fermentations. These take place at the ordinary temperature; how much more rapid must they be in the diseased digestive passages where the temperature is so elevated!

By simply depriving the patient of food and sweetened drinks, this cause of irritation is suppressed, and the ferments are destroyed by inanition, their natural aliment being cut off.

The present method is applicable to the various cases of acute enteritis, and especially typhoid enteritis. In the hands of Dr. Luton the exclusive use of cold water as a drink, united with a rigorous diet, has become the best treatment of typhoid fever itself. The putridity, the subsequent adynemia, the visceral congestions, the sloughs of the sacrum, and the fuligenous condition of the mouth, all cease, as if by enchantment, whatever may be the theory.

The indications which may arise in each case should be fulfilled. Thus, at the commencement, if there should be much gastric trouble, an emeto-cathartic should be prescribed; in the pseudo-intermittent stage, sulphate of quinine; a fatiguing cough is checked by bromide of potassium in cherry-laurel water. As the general condition of the patient improves, the diet may be gradually improved. Give at first milk in small quantities, then broths, and at last meats and wine, if no relapse occurs.—*Mouv. Méd.* and *Trib. Méd.*, No. 318, 1874. G. R. C.

Acute Endocarditis in Acute Miliary Tuberculosis.—Dr. Perroud, in *Lyon Médicale*, No. 18, 1875, calls attention to the rarity of examples of tuberculous granulations of the endocardium in cases of miliary tuberculosis. Rindfleisch has recorded two observations, and Lanceraux and Wagner each one. But beyond the fact that they are very rare, the cases refer to miliary tubercles of the valves, and cannot be called examples of true endocarditis in connection with acute miliary tuberculosis. In literature the author has been unable to find any thing on this subject. The cases which he has observed were all patients with tuberculosis in the Charity Hospital at Lyons. The tuberculous disease is generalized more or less, but the meningeal affection is the only one which becomes manifest by symptoms during life. In a large number of these cases, however, evidences of recent and undoubted alterations in the endocardium were found, especially on the free border of the auriculo-ventricular valves, and in most cases on the mitral valve. The edge of this valve was reddish, a discoloration most often due to the imbibition of the coloring-matter of the blood; sometimes traces of vascularization were visible to the naked eye. On the edges of the valve were found small rosy nodosities, varying in size from the head of a pin to a large millet-seed. These small nodules were disposed in two superimposed and parallel layers, forming small, pearly eminences, which were often covered with a thin coating of fibrine. When the course of the tuberculosis is rapid from the accession of meningitis, the endocarditis has not time to pass beyond this first degree. Then the form and functions of the valve are not altered to a degree sufficient to manifest any particular symptoms; there is no cardiac murmur, the pulsations being only more frequent. When the endocarditis has an opportunity to advance, vegetations form, and then there is no difficulty in recognizing it.

The author forms the following conclusions:

1. Acute miliary tuberculosis is one of the affections in the course of which acute endocarditis can manifest itself.

2. This endocarditis in most cases has not time to develop, the patients succumbing to the general affection before the valvular lesion has attained an advanced degree. At the autopsies, small nodosities are usually found, which have been described by authors as occurring in a number of infectious diseases, but which differ from the rare cases of tubercular granulations.

3. When the miliary tuberculosis has a sufficient duration, the endocarditis can attain a more advanced development, and give rise to signs of functional disturbance.

4. The ulcerative form has not been found in these cases.

E. F.

Poisonous Properties of Certain Coloring-Matters in Articles of Clothing which are worn next to the Skin.—In France and England no less than ten cases have recently come to public notice in which a painful vesicular eruption, attended by local inflammation, general illness, headache, and nausea, ensued after the wearing, in immediate contact with the skin, of red-silk stockings, *tricots*, and flannel jackets. As soon as the wearing of these red garments was discontinued, the eruption and general disturbance rapidly yielded to simple treatment. Profs. Tardieu and Roussin attempted to investigate the causal connection between the materials worn and the resulting skin-disease, and the former communicated the following remarkable observations at a recent meeting of the Imperial Academy of Medicine. It appears that all the red garments which caused this disease were colored with so-called "coralline," a substance obtained from coal-tar, and discovered by Persoz *fils*, in 1860:

Tardieu and Roussin injected the coloring-matter which had been extracted from the suspicious clothing, and likewise pure coralline dissolved in alcohol, with the effect, in all cases, of causing intense inflammation at the point of injection, loss of appetite, drowsiness, and finally death from profuse diarrhœa, in from four hours to three days. The autopsies not only revealed inflammation of the skin at the place of injection, and intestinal inflammation, but also deposits of the red coloring-matter in the pulmonary alveoli and compact tissue of bones; from these parts the coralline was regained by extraction with alcohol 75 per cent., and silk threads could be dyed red with it. Coloring-matters for clothing, of organic origin and poisonous (not including arsenic and copper), have hitherto been unknown. Fuchsine, or magenta-red, which contains arsenic, offers the only exception. This likewise, when clothing impregnated with it is worn next to the skin, causes tedious and painful general affections, such as pneumonia, skin-diseases, deposits in the skin and under the nails, etc.; and a case of this kind was published by Viaux, Grand Marais, at Hautes, almost simultaneously with Tardieu's report on coralline. Poisoning from coralline and fuchsine, though occurring in an identical manner and presenting much analogy, is essentially different, since fuchsine owes its poisonous properties to arsenic, whereas coralline never contains the latter, and is in itself poisonous. E. F.

Pernicious Progressive Anæmia.—At the medical clinic at Basle, Prof. Immermann has observed two cases of very intense anæmia, which in their symptoms, course, and *post-mortem* lesions, closely resembled those described by Biermer under the above title, and the five cases described by Jusserow under the name of "rapid anæmia of pregnancy." Two further cases have been reported by Perroud. In one of Immermann's cases, fatty degeneration of the heart was found. The symptoms comprise an increasing paleness of the integument, progressive feebleness, cardiac palpitation, and rapid death. The distinguishing features are: 1. Its appearance without ascertainable cause; 2. Its extreme degree, and the occurrence of certain alterations in the circulatory centres; 3. The unaccountable presence of fever; and, 4. Its fatal course, resisting all therapeutic measures. According to Biermer and Jusserow, in the Canton of Zurich it is especially observed in women between twenty and forty years of age; pregnancy favors its development, as also do poor habitations, bad nourishment, diarrhœa, and flooding. The pathological changes are chiefly in the composition of the blood. During the course of the affection there is oligocythemia, and toward the end hydræmia; in several cases there was leucocythemia. Biermer has found partial degeneration of the cardiac muscular fibres, especially of the papillary muscles, and degeneration of the muscular tunic of the arteries. Ponfick has found the same lesions, and also degeneration of the renal epithelium of the hepatic cells and utricular glands of the stomach. The physical signs are: a rough bellows-murmur at the base of the heart and in the great vessels, with marked tendency to hæmorrhages from the skin, nose, gums, brain, and retina. The fever is an important and constant symptom; it has no special type and is seldom intense; it obviously accompanies and aggravates the anæmia, but the latter is too intense to be considered as its cause, and furthermore it does not appear until the anæmia has advanced to a certain degree. Immermann looks upon pregnancy as the coefficient cause, and recommends the induction of premature labor.—*Lyon Médicale*, No. 16, 1875.

E. F.

Repeated Spontaneous Gangrene of Thigh.—A widow sixty-six years of age had, following a pneumonia in April, 1870, a thrombus in the left popliteal artery. This caused gangrene of the limb, for which Prof. Estlander, on the 3d of May, amputated the leg at its upper third, finding the arteries atheromatous and the popliteal plugged by a thrombus, though the arteries of the leg were free. The treatment lasted till August, in consequence of gangrene of the flaps, and the patient was then discharged cured. She returned to the hospital October 6, 1873, having continued well till within two weeks, at which time gangrene recurred in the cicatrix of the stump and began to spread up the thigh. On examination the left thigh was found to be much thicker and fatter than the right; the slough extended on the outer side only about a hand's breadth above the knee, but on the inner side half-way up the thigh, without a distinct line of demarkation. On the 13th of October, as the extension of the gangrene had apparently ceased, amputation of the thigh was performed, during which it was noticed that the subcutaneous fat-tissue was solid and stiff, like that of a frozen cadaver, so that it was difficult to fold the flap. In the portion removed by the operation, the popliteal artery was found obliterated as far up as the tendon of the adductor magnus, corresponding to the extent of the thrombus discovered three years previous. With the exception of a slight tendency to gangrene in the skin of the flap, every thing progressed well, and the patient was dismissed cured, February 19, 1874. Several days before leaving she said that every thing she ate seemed to go into the stump, which again became much fatter than the remainder of her body.—*Finska läk. sällsk. handl.* and *Nord. Med. Arkiv*, vol. vi., No. 3. G. R. C.

Pregnancy with Complete Hymen.—Dr. Zambelli reports the case of a young, healthy, robust woman, who presented herself to him, toward the end of gestation, with the idea that there was something abnormal about her organs of generation. Before her pregnancy she had menstruated regularly, and without experiencing any inconvenience. She was carefully examined, and the doctor was astonished to find that the orifice of the vagina was *completely* occluded by a thick and imperforate membrane. The examination was very carefully made. The end of the finger was directed toward the centre of the membrane, which was found to be elastic, yielding slightly to pressure, but no perforation could be discovered. The end of a fine probe was then passed all over the membrane and over its periphery, but without meeting with any sinus or depression. Dr. Zambelli came to the conclusion that the apertures through which the menses escaped and the seminal fluid entered must be very fine and numerous.

When labor commenced, it was noticed at one point on the periphery of this membrane, that a few drops of sanguineous fluid escaped, and Dr. Zambelli thought it might be at this point that the vagina communicated with the exterior, but he was unable to decide definitely. After incising the membrane parturition was easily completed. The writer states, in conclusion, that the case would have been incredible to him if he had not been a witness.—*Fr. Méd.*, No. 81, 1874, and *Gaz. Med. Padova.* G. R. C.

Absolute Repose in Tetanus.—Prof. E. De Renzi draws the following conclusions from his observations of tetanus:

1. Light renders the tetanic contractions of animals and man more frequent and intense.

2. It can be demonstrated experimentally in animals, that absolute repose, during the absence of all stimulus, retards the tetanus and renders it less fatal.

3. Of three cases of severe tetanus, treated almost exclusively by absolute repose, two cases were cured. The patients were kept isolated in a dark room; all noise or other stimulus or irritation was avoided, except such as was caused by the administration of food and beverage at long intervals.

4. In one case death resulted, notwithstanding the administration of large doses of hydrate of chloral, and several hypodermic injections of woorara. It would appear that the chloral increases the difficulty of respiration, which is already affected by the disease.

5. In the actual condition of science, absolute repose shows itself to be the principal remedy in the treatment of tetanus. The removal of stimulus should, however, be as complete as possible, and be recognized as an important accessory.

6. In two cases of traumatic tetanus, the first severe tetanic manifestations occurred a few hours after the amputation of

the injured limb. This shows that amputation, instead of impeding the further development of the disease, renders it more intense from the irritation of the nerves of the amputated part.—*Gaz. Med. Ital. Lomb.*, January, 1875. G. R. C.

Phrenodynia, or Neuralgia of the Phrenic Nerve.—It is generally believed that the phrenic nerves are exclusively motor, but diaphragmatic pleurisy can only be explained on the ground that this nerve also contains sensitive fibres. Besides its occurrence in all inflammations in the vicinity of the diaphragm, hepatitis, pericarditis, pleurisy, etc., neurodynia of this nerve frequently also accompanies the vomiting and persistent hiccough of phthisical patients. In a phthisical patient, in the division of M. Peter, who had suffered for several days from hiccough, vomiting, and phrenodynia, pressure on the phrenic nerve sufficed to call forth paroxysms of these symptoms. Injections of morphine have given no relief, whereas electrization of the phrenic nerve for three or four minutes has given relief for four or five hours.

Treatment of Hiccough.—When the hiccough is sudden, and of recent date, it may be due to abundant and rapid ingestion of food, to indigestible substances, or to a morbid disposition of the stomach. In these simple cases ordinary measures are usually sufficient to check it, such as suspension of respiration; emotion; cold water drunk slowly; pressure on the epigastrium, recommended by Borden; ether on sugar; catheterism of the œsophagus. When all these means fail, the passing of a galvanic current along the course of the phrenic nerve will be effectual.—*Rev. de Thérap.*, No. 19, 1874. E. F.

Symmetric Gangrene of the Extremities.—Edward Bull relates in the *Norsk. Mag. f. Laegevid*, vol. iii., No. 3, a case of local asphyxia occurring in a servant-girl eighteen years of age. The patient was previously well, with the exception of an occasional menostasia. About the 24th of October, after washing in cold water, itching commenced in both index-fingers, accompanied by a bluish swelling of all the fingers. The pain constantly increased, especially in the index-fingers, which could not be extended. Ten days later, a hard spot appeared at the points of the index-fingers and soon turned black. On examination, November 11th, all the fingers were found to be reduced in temperature, blue and swollen. The black spots were about the size of almonds, and were seated symmetrically on the volar surfaces of the last phalanges, were insensible to the prick of a needle, and there was but little sensibility in the other fingers. The pains, which disturbed her sleep, became worse and continuous. After several days, yellowish demarcation rings of pus were formed around the spots. Cataplasms were now applied, and the gangrenous black portions became detached, and the pains ceased. By the 1st of December the sores were clean and granulating, and the swelling gradually diminished. In a few months they were entirely healed, with the loss of the pulps of both index-fingers.—*Nord. Med. Arkiv*, vol. vi., No. 2. G. R. C.

Administration of Purgatives by the Hypodermic Method.—Prof. Luton, of Rheims (*Mouvement Médical*), for the pur pose of relieving himself of an attack of hemicrania, resorted to the hypodermic use of muriate of morphine, of which he had previously neutralized an acid solution with calcined magnesia, to prevent subcutaneous irritation; of this he injected a syringeful. Having before had a costive tendency, he was now attacked by a mild diarrhœa. He then instituted further experiments on himself with an injection of sulphate of magnesia (1 : 10), which also resulted in diarrhœa. In another man, with constipation, in whom aloes and rhubarb were inert, he injected 0.1 gramme of sulphate of magnesia in 1 gramme of water, after which the patient had two stools. Injections were also made with the aqueous extract of aloes (1 : 10), and this seems to be borne better by the subcutaneous tissue than the former remedy. The experiments of Vulpian and Corville on dogs showed that the animals after this treatment were attacked with intestinal catarrh. In four patients suffering from vomiting and constipation, injections of sulphate of magnesia caused looseness of the bowels and cessation of the vomiting. From this Prof. Luton concludes that these injections paralyze the antiperistaltic and stimulate the peristaltic movements, and he suggests their use in the vomiting of pregnancy, sea-sickness, etc.—*Med. Chir. Centr.*, No. 17, 1875. E. F.

Absence of Uterus, with Hernia of Ovaries.—A. Lamm reported to the Swedish Medical Society the case of a servant-girl, twenty-five years of age, who had never had either a menstrual flow or a molimen. She was constipated and suffered from headache. Her general appearance and the form of her body were of the female type; the breasts were normally developed, as were also the external genitals. In each inguinal canal there was found a body about the size of a plum, which was supposed to be an ovary. One of them could be pushed back, the other could not. During hard work a pain occurred in these parts. The vagina was nine centimetres long, narrow, and without rugæ; it had a blind termination, becoming gradually more and more narrow, without any trace either of a vaginal portion of a uterus or of an os. On bimanual, vaginal, and rectal examination, no trace of a uterus could be found, though there was a thin, firm cord running across the pelvis.—*Nordiskt Med. Arkiv*, vol. vi., No. 1. G. R. C.

Rupture of a Degenerated Bronchial Gland.—A child, seven years old, was seized with a violent paroxysm of coughing, and soon became blue in the face, and died immediately. The child had previously been quite well, with the exception of a troublesome cough during the last six months. On *post-mortem* section, Dr. Kjerner found that the trachea was filled with a grayish-white, ashy substance from about an inch below the rima glottis to the bifurcation of the bronchus. In the right bronchus, just below the bifurcation, a round hole was found in the posterior wall, leading into a cavity about the size of a pigeon's-egg, in a bronchial gland. The gland was, for the most part, changed into a yellowish-gray, cheese-like mass. The other bronchial glands were degenerated; some of them were melting down and contained collections of caseous matter. The substance in the trachea was found, on examination, to be of a caseous nature, similar to that found in the bronchial glands.—*Hygiea* and *Nordiskt Med. Arkiv*, vol. vi., No. 1.
G. R. C.

Transfusion with Lamb's Blood.—The experiments made by Fiedler and Birch-Hirschfeld (*Centralblatt f. d. Med. W.*), in six individuals affected with phthisis, have shown that in not a single case was there marked improvement; that, on the contrary, in several instances, the operation was followed by an aggravation of the disease. In one case of puerperal pyæmia the operation was unsuccessful, while in a case of very intense anæmia from ulcer of the stomach the salutary effect could not be denied. The authors consequently consider the question concerning the value of transfusion with the blood of animals as still unanswered. The following observations were made in regard to the behavior of the blood-corpuscles in the foreign serum: The corpuscles of lamb's blood were not dissolved, perhaps only slightly swollen and pale. In like manner human blood-corpuscles were not dissolved in lamb's serum even after five days; they only become more indented. —*Med. Chir. Centralblatt*, No. 18, 1875. E. F.

Cause of Urethral Stricture.—M. Oudenhouven, chief health-officer of the Dutch marine, has observed that among the Japanese, Malays, and Chinese, strictures are very rare, notwithstanding the frequency of blenorrhagia, and he attributes this fact to their peculiar form of dress, which necessitates the performance of micturition in the sitting posture, a position which diminishes the curve of the urethra and frees the genitals and urethral canal from all compression. Among Europeans, on the contrary, the pantaloons cause an augmentation of the curvature and a compression of the canal; micturition, therefore, requires more effort, and the urine produces more friction of the urethral walls; the epithelium is eroded, the inflammation is deeper, and granulation-tissue forms. Oudenhouven, therefore, recommends that all patients with urethritis should be advised to urinate while in the sitting posture.—*Genees-Kundig voor de Zeemacht*, and *Lyon Méd.*, No. 16, 1875. E. F.

Ammonio-Sulphate of Copper in Epilepsy.—M. Bourneville (*Le Progrès Médical*) publishes five observations of epilepsy treated with this remedy. The results obtained are somewhat encouraging, as in all five patients a slight ameliora-

tion was produced. The remedy is administered in pillular form, each pill containing 10 centigrammes. On the first day one pill is taken, followed by two at the end of several days; on the tenth day three are taken, the interval between each dose being increased in proportion to the number of pills. The quantity of sulphate of copper taken by the five patients has been respectively 43, 43, 65, 47, and 60 grammes. All the patients preserved a good appetite, and nutrition was not modified. Although four of them had vomiting, and one diarrhœa, these symptoms did not necessitate special treatment or suspension of the remedy.—*Lyon Médicale*, No. 18, 1874.
E. F.

Malignant Pustule.—In the Augusta Hospital, at Berlin, two cases of malignant pustule have occurred recently which resulted fatally in a short time. In the first patient it was ascertained that he had eaten no meat from diseased animals, but that infection could have occurred only in consequence of his occupation, the disentanglement of the hairs of cushions of old cars. As hairs from cattle are also used for stuffing cushions, it must be assumed that the patient was infected in this manner. Eight days after the autopsy on this patient, the attendant who had sewed up the body was attacked with the same symptoms, and died in a short time. This confirms the transmissibility of the contagion of anthrax from man to man.
E. F.

Treatment of Erysipelas by Turpentine.—Lucke was the first to try this remedy in spontaneous and traumatic erysipelas. G. Leonardi has used it extensively, and confirms its beneficial effects. It shortens the course of the disease, the fever is promptly diminished, and the diffusion of the malady is at once arrested. In no case has it been known to produce a so-called metastasis, or other injury to any other portion of the organism. It is simply necessary to apply the oil of turpentine to the erysipelatous surface with a brush.—*Gazzetta delle Cliniche*, May, 1874.
G. R. C.

Double Voice.—At a recent meeting of the Austrian Society of Physicians, Dr. Schnitzler presented a tenor-singer from Hanover, who unfortunately could sing two notes (thirds) at the same time. This remarkable fact is due to a small polypous growth on one of the vocal cords; this tubercle, when the patient sings, divides the chords into two unequal portions, each of which then produces an independent tone. The phenomenon can be best observed when the patient sings *falsetto*. E. F.

The Morphine Habit.—We learn from German periodicals that the abuse of hypodermic injections of morphine, originally employed for the alleviation of pain, has of late assumed a deplorable magnitude among the laity as well as among medical men. The hypodermic syringe has become the means for indulgence in a vice which has the closest relation to opium-eating. The narcosis resulting from morphine-injections seems to exert a peculiar excitement on some natures which compels them finally to continually resort to this stimulus. The appearance of those who indulge in this vice resembles that of opium-eaters (tremors of the limbs, sallow complexion, etc.), and it is very difficult to wean them from the indulgence. E. F.

Miscellany.

Appointments, Honors, etc.—Drs. Isaac E. Taylor and Gouverneur M. Smith have resigned their positions as visiting physicians to Bellevue Hospital. Dr. Taylor has been appointed consulting physician, and is succeeded by Dr. A. B. Crosby. Dr. J. P. P. White succeeds Dr. Smith. Dr. White has resigned the position of visiting physician in Charity Hospital, and is succeeded there by Dr. M. A. Pallen. Dr. Mary Putnam Jacobi has recently received from the Medical Faculty of Paris the bronze medal awarded her for her inaugural thesis, on "The Neutral Fat and Fatty Acids." Dr. S. Weir Mitchell has been elected Trustee of the University of Pennsylvania. Dr. Thomas Bevan has been elected President of the Chicago Society of Physicians and Surgeons. Dr. Robert C. Chenault has been appointed Medical Superintendent of the First Kentucky Lunatic Asylum, in place of Dr. G. S. Bryant, deceased. Dr. E. J. Kirkscey, of Columbus, Ga., has accepted a commission as surgeon in the Army of the Khedive of Egypt. Prof. A Sager has resigned the position of Dean of the Medical Faculty of the University of Michigan, giving as a reason the recent action of the Board of Regents in establishing a homœopathic branch of the medical school. Dr. J. G. Thomas, of Savannah, member of the State Legislature, and President of the Medical Association of Georgia, has been elected President of the Board of Health of that State. Dr. John P. Gray, Superintendent of the New York State Lunatic Asylum, at Utica, has been appointed Professor of Psychological Medicine and Medical Jurisprudence in the Bellevue Hospital Medical College.

John Fullerton Beatson, M. D., has been appointed Surgeon-General of the Bengal Army. M. Dubrueil, an *agrégé* of the Paris Faculty, has been chosen by the Faculty of Medicine of Montpellier to fill the vacant chair of Clinical Surgery. Dr. Fleetwood Churchill, of Dublin, has retired from practice, and settled in a country-house in the county of Tyrone, Ireland. Sir James Paget, F. R. S., has been elected President of the Royal College of Surgeons. Dr. Edward Hamilton has been elected President of theRoyal College of Surgeons, Ireland. Dr. B. W. Richardson has been elected President of the Health Department of the Social Science Congress, to meet in October next, in Brighton, England. Mr. Christopher Heath has been appointed Holmes Professor of Clinical Surgery in the University Hospital of London, in place of Mr. Erichsen, resigned. Two of Dr. Tilt's works—his " Handbook of Uterine Therapeutics," and " Change of Life "—have been translated into Italian by Dr. Rey, of Rome, and the Italian Government has made him a Knight of the Crown of Italy. The Prussian Order " Pour le Mérite " has been conferred on Prof. Stokes, of Dublin. Messrs. Bryant and Durham have been appointed Lecturers on Surgery at Guy's Hospital, in place of Messrs. John Birkett and Cooper Foster, resigned. Madame Brés, who recently obtained a medical degree in Paris, has been offered the appointment of physician to the Sultan's harem in Constantinople. Prof. Bayer, of Strasburg, is to succeed Prof. Liebig in the University of Munich. The number of medical students in the University of Melbourne, during the year 1874, was forty-one. Spencer Wells has now performed ovariotomy 710 times.

The Pennsylvania State Medical Society.—The Twenty-sixth annual meeting of this Association, which was held in Pottsville, June 9th and 10th, was one of unusual interest. Thirty-one counties were represented, and there were present one hundred and fifty-five delegates. Dr. Washington L. Atlee, the President, occupied the chair. Dr. A. H. Halberstadt, of Pottsville, delivered the address of welcome. The subject of the President's address was "Old Physic and Young Physic." The address in medicine was delivered by Dr. William Pepper, and was a very able paper. The address in surgery was by Dr. Richard J. Levis, and that on "Hygiene" by Dr. Benjamin Lee. Papers were read by Drs. O. H. Allis, John J. Carpenter, John Curwen, L. Turnbull, and others. The following officers were elected for the ensuing year:

President, Dr. Crawford Irwin, of Blair County. Vice-Presidents, Drs. Andrew Nebinger, Philadelphia; A. N. Naeberstadt, Schuylkill County; R. L. Sibbet, Cumberland County, and J. F. Ross, Clarion. Corresponding Secretary, Dr. Thomas L. Drysdale, Philadelphia. Permanent Secretary, Dr. William B. Atkinson, Philadelphia. Recording Secretary, Dr. James Tyson, Philadelphia. Treasurer, Dr. Benjamin Lee, Philadelphia. Committee of Publication, Drs. Atkinson, Evans, Lee, Drysdale, Tyson, Fricke, and McIntire.

The following appointments were announced by the President: Address in Surgery, Dr. D. Hayes Agnew, of Philadelphia; Address in Obstetrics, Dr. R. Davis, Wilkesbarre; Address in Medicine, Dr. J. Aitken Meigs, Philadelphia; Address in Hygiene, Dr. B. Lee, Philadelphia; Address on Mental Disorders, Dr. John Curwen, Harrisburg.

The Society adjourned to meet in Philadelphia on the last Wednesday in May, 1876.

Deaths from Chloroform.—Dr. J. R. Buist reports, in the *Nashville Journal of Medicine and Surgery* of June, the death of a boy eleven years of age, under the administration of chloroform for the reduction of paraphymosis. At the instant the operation was completed, the patient ceased to breathe. The prompt application of Nélaton's method produced only a few gasping respirations, and all subsequen efforts failed to restore life. No reason is given for the use of chloroform in preference to ether. In any case it is hazardous practice to place a patient in a state of anæsthesia without the presence of a second physician. It was thirty minutes after the death of the boy before Dr. Buist was able to obtain assistance.

In the *Australian Medical Journal* of February, 1875, a case of death from chloroform, in the Adelaide Hospital, is reported by Dr. William Eugene Jay. The patient was "a healthy, muscular-looking man," aged forty-five years, on whom amputation of a finger was to have been performed. After chloroform had been inhaled for about two minutes, violent struggling occurred suddenly, and in a few moments the patient became pulseless. Every effort was made to restore life, including the use of galvanism, artificial respiration, and Nélaton's method of resuscitation, and persevered with for three-quarters of an hour, but in vain. The *post-mortem* examination showed no organic lesion of any organ; the brain was very anæmic.

Journalistic Notes.—*The Irish Hospital Gazette* has ceased to exist as a distinct journal, and has been amalgamated with the *Dublin Journal of Medical Science.* The *Gazette* was two years and a half old, and has certainly not failed for want of good management, as it has invariably furnished much interesting and valuable matter, both in the form of reports and original communications. The *Boston Medical and Surgical Journal* for June 17th was devoted to Centennial reminiscences, and had as a frontispiece a portrait of General Joseph Warren, M. D. Dr. William K. Bowling has retired from the position of senior editor of the *Nashville Journal of Medicine and Surgery*, and Dr. W. T. Briggs has taken his place. Dr. Francis L. Parker, Professor of Anatomy in the Medical College of South Carolina, has become associate editor and publisher of the *Charleston Medical Journal and Review.* The *Medical Register and Advertiser* is a neat and well-arranged little journal, and now appears on the 15th of every month. It is edited by James I. Hale, M. D., and published in Anna, Illinois. The *Obstetrical Journal* for July contains a fac-simile of a letter written by Harvey, supposed to be the only letter in existence in Harvey's handwriting.

The Medical Society of the State of North Carolina.—The twenty-second annual meeting was held in Wilson, May 18th, the President, Dr. J. W. Jones, of Tarboro, in the chair. The following are the officers elected for the ensuing year: Drs. P. E. Hines, Raleigh, President; J. H. Baker, Tarboro, G. G. Smith, Concord, T. D. Haigh, Fayetteville, and J. K. Hall, Greensboro, Vice-Presidents; James McKee, Raleigh, Secretary; H. T. Bahnsen, Salem, Treasurer; Willis Allston, Littleton, Orator. Delegates to American Medical Association, to convene in Philadelphia 1876, Drs. W. J. Pitman, Tarboro; W. A. B. Norcom, Edenton; E. B. Haywood, Raleigh, and J. J. Summerell, Salisbury. Alternates, Drs. H. W. Faison, Faison; R. H. Winborne, Edenton; G. A. Foote, Warrenton, and R. L. Payne, Lexington.

The Michigan State Medical Society.—The ninth annual meeting was held in Detroit, June 9th and 10th. Dr. R. C. Kedzie, of Lansing, President, in the chair. After the transaction of a large amount of business, and the admission of a number of new members, the Society proceeded to the election of officers for the ensuing year, with the following result: President, Dr. Wm. Brodie, Detroit; Vice-Presidents, Dr. James A. Brown, Detroit; Dr. G. C. Frothingham, Ann Arbor; Dr. H. B. Shank, Lansing; Dr. C. W. Backus, Three Rivers; Recording Secretary, Dr. Geo. E. Ranney, Lansing; Corresponding Secretary, Dr. Leartus Connor, Detroit; Treasurer, Dr. Gordon Chittock, Jackson. The next meeting will be held in Ann Arbor, on the first Wednesday in May, 1876.

Wisconsin State Medical Society.—At the twenty-ninth annual meeting, held in Madison, June 2d and 3d, the following officers were elected for the ensuing year: President, J. B. Whiting, of Janesville; Vice-Presidents, Ira Manly, Jr., of Waukesha, and F. Senn, of Milwaukee; Secretary and Treasurer, J. T. Reeve, of Appleton; Assistant Secretary, Dr. Nichols, of Milwaukee. Milwaukee was designated as the next place of meeting. The committee appointed to take measures to secure a law for the appointment of a State Board of Health reported that their efforts thus far had been unsuccessful. A resolution was adopted declaring it inexpedient that a medical college be established in Madison.

The Water-Supply of Cities.—Surgeon-Major T. De Chaumont, in his lectures on "State Medicine," before the Society of Apothecaries, London, states that the quantity of water necessary for each person in a civilized community is from 16 to 18 gallons per day. The supply of London is not mentioned, but it is stated by the lecturer that Glasgow is furnished with a supply equal to 50 gallons per head per day; Southampton, 35; Liverpool, 30; Sheffield, 20; Nottingham, 17; Norwich, 12; and Derby, 14. In New York the quantity consumed daily is stated to be 300 gallons, and it is estimated that the inhabitants of ancient Rome expended as much as 350 gallons per day.

The West Virginia State Medical Society.—The annual meeting was held at Point Pleasant, June 2d. Dr. M. Campbell, President, in the chair. The following were the officers elected for the ensuing year: President, Dr. A. R. Barbee, Point Pleasant; First Vice-President, Dr. J. O. Wall, Huntington; Second Vice-President, Dr. S. G. Shaw, Point Pleasant; Third Vice-President, Dr. B. F. Hoyt, Ravenswood; Secretary, Dr. W. M. Dent, Newburg; Treasurer, Dr. J. C. Hupp, Wheeling; Censors, Drs. Hildreth, Charter, Carpenter, Pipes, Hall, L. F. Campbell, and Bond. The next meeting will be held in Wheeling on the first Wednesday in June, 1876.

The Presbyterian Hospital.—We are glad to learn that the Board of Governors of this hospital, at a recent meeting, determined to adopt measures which will lead to an amicable and satisfactory adjustment of the unfortunate differences between the medical staff and certain members of the board. No formal action can be taken until the meeting of the board in October, but there is reason to believe that an excellent understanding will be arrived at between the board and the original staff, and that they will work together harmoniously in future.

Longevity in England.—The mortality returns for England for the year 1872 show that 195 men and 433 women died at 95 years old and upward. Of this number 24 men reached or exceeded 100 years, one attaining 111 years. Of the women 51 reached or exceeded 100 years, two having died at the age of 107. Of the whole number remaining, men and women, two died at 101, two at 102, one at 103, two at 104, and one at 105.

New Hampshire Medical Society.—The eighty-fifth annual meeting of this Society was held June 15th, the President, Dr. Nahum Wight, of Gilmanton, in the chair. The following officers were elected: Dr. S. M. Whipple, of New London, President; Prof. A. B. Crosby, Vice-President; Dr. G. P. Conn, Concord, Secretary; and Dr. Thomas Wheat, Manchester, Treasurer.

An Australian Medical Union.—The *Australian Medical Journal* advises the formation of a medical society composed of the practitioners in the Australian colonies, of whom there are said to be in all about 1,200, distributed nearly as follows: Victoria, 500; New South Wales, 400; South Australia, 150; Queensland, 100; Tasmania, probably 60.

The Kentucky School of Medicine.—We learn from the *American Medical Weekly* that the class, during the session which closed June 23d, numbered 118. The graduating class numbered 42.

Death during the Administration of Ether.—Mr. G. H. Bailey, "Anæsthetist to the Cancer Hospital, and to the Dental Hospital of London," reports in the *Lancet* of July 3d a case of death, with escape of blood into the trachea, during the administration of ether. The case occurred June 23d, in the Cancer Hospital. The patient was a man aged fifty-one years, and the proposed operation was the removal of a portion of the tongue. During the operation the respiration became so feeble, though the pulse continued "remarkably good," that the ether was suspended, and artificial respiration resorted to, by Sylvester's method and galvanism. Respiration, however, ceased entirely, but the pulse "kept beating for, it seemed, some minutes." The *post mortem* showed a clot of blood about four inches long, by a quarter of an inch in diameter, extending from the glottis into the trachea. Dr. Benjamin W. Richardson, under whose supervision the *post mortem* was made, adds the following note to the report:

> The case recorded by Mr. Bailey is one of extreme interest. The mode of death seems to me, from all the facts I gathered from the different observers, to have been as follows: From the deep narcotism induced by the ether, the respiration for a moment became reduced in power, as is not unfrequent under this mode of general anæsthesia. During the artificial respiration a little blood escaped into the glottis and impeded the efforts of the operators in reëstablishing natural respiration. They filled the lungs with air, but did not establish a return-current; so the death became pronounced by asphyxia. The heart, as is common under such circumstances (when the lungs remain inflated), continued to beat until it collapsed from deficiency of arterialized blood.
>
> I have no doubt the man would have recovered under the artificial respiration had the trachea been free of obstruction; and the practical lesson taught by the case is, that in future, whenever the respiration fails during an operation on the mouth and throat, the artificial respiration should be made with double-acting bellows from an opening in the trachea, with the head of the patient brought very low, so as to allow fluid to gravitate from the bronchial tract.
>
> Physiologically, the case is of interest in that it has, unfortunately, enabled us to see, for the first time in the human subject, the precise conditions induced in the organism by ether administered to complete insensibility. The appearances are identical with those I have seen in the lower animals after death by ether. The blood fluid, the arterial blood dark, the cerebral arteries and veins charged with dark blood, the mucous membranes injected, and the pia mater of the brain, medulla, and cord, intensely injected, but the cerebral mass itself white and bloodless. Long ago I classified ether with alcohol, amyl nitrite, and others of the same series, as an agent which by its action on the organic nervous supply of the minute circulation reduces the arterial tension, and produces narcotism by congestion of vessels and suspension of circulation through the cerebral mass. The case before us is a case in point. The whole external vascular mechanism of the cere-

brum, cerebellum, and cord, was distended with blood; the whole of the internal nervous mechanism was bloodless. The facts have a further and important bearing on the suggestive researches and ingenious theories of Dr. Cappie upon the cause of the phenomenon of sleep. But the most interesting fact of all taught by the case is, that a perfectly bloodless condition of brain-substance may coexist with intense vascular congestion of the membranous vascular net-work, the same as coexists with that empty and contracted state of the vascular net-work which is induced by chloroform and the other narcotic agents of the chloride series. This is a new truth which must not be forgotten in future research.

The International Congress of Ophthalmology.—This Society will meet in New York City on Tuesday, September 12, 1876, at twelve o'clock noon. The following extracts from the rules of the Congress will give an idea of the general character of the Society, and of the terms of membership:

"1. The object of the International Periodic Congress of Ophthalmology is to promote ophthalmological science, and to serve as a centre to those who cultivate it. It will entertain no discussion foreign to this object.

"2. The number of members is unlimited.

"3. Every member must be either a doctor of medicine, or of surgery, or of science, or possess some other equivalent degree, or be distinguished for his scientific knowledge.

"4. Candidates for admission into the Society shall be admitted on presentation of their diploma or of their scientific title, unless ten members demand a ballot.

"5. The sessions of the Society shall take place every fourth year, and be limited to ten days.

"11. The Society gives no diploma. Before the opening of each session a card available for admission to all the meetings, and signed by the President and Secretary, shall be given to each member on payment of his subscription (fixed at $2), and upon signature of his name on the register of those attending the meeting."

Among the members of this Congress are such men as Arlt and Stellwag, of Vienna; Giraud-Teulon, Javal and Wecker, of Paris; Helmholtz, of Berlin; William Bowman, George Critchett, R. Liebreich, J. W. Hulke, and Soelberg Wells, of London; Donders and Snellen, of Utrecht, Holland.

It is hoped that many of them will come to New York in 1876. The committee are making all efforts to secure a large attendance, and one that will leave its mark upon the progress of scientific ophthalmology. The coöperation of the profession of the United States in securing these objects is earnestly desired by the undersigned, the Provisional Committee appointed in London in 1872.

Cornelius R. Agnew, M. D.
Henry D. Noyes, M. D.
Daniel B. St. John Roosa, M. D.

Treatment of Disease of the Heart.—Dr. J. Milner Fothergill, in concluding an article in the *Lancet* of May 29th, says of diseases of the heart:

Of preventive measures nothing can be said at present; but of measures palliative or curative the following brief summary may be made:

1. That it is of the utmost importance in the treatment of primary disease of the heart to reduce to a minimum the calls upon that organ. Consequently, light labor alone must be attempted; and rest in bed is often very desirable at the commencement of a course of treatment, as well as at intervals afterward.
2. Frequently much relief can be afforded, when dropsy is present, by unloading the distended venous system. Brisk catharsis gives great relief, and does not depress the patient, as might be apprehended.
3. In all cases the heart must be acted upon directly by agents which increase the vigor of the ventricular contractions, of which digitalis is the chief. This agent may be given uninterruptedly for years without any so-called cumulative action, if the cases are properly selected. If given in improper cases, unpleasant consequences may follow its administration.
4. It is also very desirable that the nutrition of the heart be maintained by good food and iron, in addition to the means mentioned above. Improvement in the general condition facilitates the action of the special remedies.

By combination of these measures, adapted to the needs of each individual case, much may be done in cases of primary disease of the heart. What are the indications for treatment and the measures to be resorted to in cases of secondary affections of the heart—that is, where the heart-failure is due to some primary ailment standing in a casual relationship to it—will engage our attention on some future occasion.

School for Nurses.—The Commissioners of Public Charities and Correction purpose opening a School for Nurses, at Charity Hospital, on the first day of August next. It is their design to offer to worthy young women, between the ages of twenty and thirty-five, the opportunity to acquire proficiency in a pursuit which is at once honorable, useful, and remunerative, by educating them in the profession of nursing. Every effort will be made to elevate the occupation, by a course of careful instruction from competent teachers, and by considerate and generous treatment of the pupils. The course of training will occupy two years, and will embrace lectures upon nursing, food, ventilation, midwifery, and all subjects connected with nursing.

The lectures will be given by physicians connected with the hospital, and will include a course of twelve lectures upon each subject every six months, and frequent instruction at the bedside.

At the expiration of two years the nurses will be examined by a committee of physicians, and those who are competent and qualified will receive a diploma, signed by the Commissioners of Charities and Correction, and the Examining Committee.

Applications stating name in full, age, and names of clergyman and family physician, should be addressed to

Joshua Phillips, *Secretary*,
66 Third Avenue,
New York City.

Prize Essay on Bright's Disease.—At the last annual meeting of the Medical Association of the State of Alabama, Dr. S. D. Seelye, of Montgomery, placed in the hands of the Association a prize of one hundred dollars, for the best treatise on Bright's disease, under the following regulations, viz.:

1. Competition for the prize to be open to the whole country.
2. A committee of five to be appointed to adjudicate upon the essays presented.
3. All essays to be forwarded to the chairman of said committee on or before the 1st day of February, 1876, and to be accompanied by a sealed letter containing name and address of the author, which letter shall not be opened until after the adjudication is made.
4. The prize essay to be the property of this Association, and to be published in its annual volume of "Transactions"; and all unsuccessful papers to be returned to the address of the authors; honorable mention being made of any deemed of especial merit.
5. If none of the essays presented are deemed worthy of

the prize, the committee shall have the privilege of rejecting all, in which case the competition shall be open for another year.

6. The prize shall be one hundred dollars in currency, with a certificate of this Association suitably inscribed, and bearing the seal of the Association ; or it will be wrought into a gold medal or plate, with a suitable legend and a fac-simile of the seal of the Association engraved thereon, to be of the full value of one hundred dollars, less the price of manufacture, at the option of the successful author.

7. The adjudication shall be publicly announced at the next annual meeting of the Association, to be held at Mobile, during the second week in April, 1876.

Committee on Adjudication : Dr. Jerome Cochrane, Mobile, Ala., Chairman ; Dr. J. B. Gaston, Montgomery, Ala. ; Dr. W. H. Anderson, Mobile, Ala. ; Dr. Peter Bryce, Tuscaloosa, Ala. ; and Benjamin H. Riggs, M. D. ; Secretary, M. A. S. A., Selma, Ala.

Correspondence.—The following letter has been addressed to the editor of the *Medical Record* in reply to certain statements regarding the recent homœopathic legislation in Michigan :

UNIVERSITY OF MICHIGAN, ANN ARBOR, *July* 15, 1875.

Editor Medical Record.

DEAR SIR : You are in error in your brief editorial in the *Record* of Saturday last, and have done the Regents of this University an injustice, by asserting that an attempt is being made on their part "to appoint one or two homœopathic professors ostensibly to take charge of the new department, but in reality to become by law members of the Faculty." If you will refer to the bill establishing the college of homœopathy—published in full a few weeks since in your own columns—you will see that this assertion is not true. The homœopathic professors are not, and by the very terms of the act cannot be, members of the Faculty of the now existing department of medicine ; nor on the other hand are the professors in this (the old) school members of the Faculty of the homœopathic college, for both schools have separate statutory enactments creating them distinct and independent departments of the University.

Your article is furthermore *doubly* unjust to the Regents from the fact that they have twice peremptorily refused to obey the Legislature when it attempted to force such "disagreeable and unprofitable associations," by enacting the appointment of homœopathic professors in the old department of medicine. This offensive feature having been removed in the last act, the Regents have accepted the legislative grant, and have established the new college.

Very respectfully,
E. S. Dunster, M. D.

The German Sanitary Association will be held this year in Munich, on September 13th, 14th, and 15th. The following questions have been proposed by the committee for discussion: 1. The determination of a plan for examining into the local and temporal causes of epidemics of typhus (including enteric fever): reporters, Prof. von Pettenkofer and Dr. Port. 2. The sanitary requirements of new buildings, especially in new quarters of large towns: reporters, Dr. Varrentrapp, Engineer Burkle-Ziegler. 3. The sanitary requirements as regards diet in orphan asylums, barracks, prisons, and almshouses for old persons, and also in public kitchens: reporter, Dr. Voit. 4. On the object, means, and limits of a sanitary police control over some important articles of food, especially bread and meat. 5. On public slaughter-houses and the introduction of a general supervision of the slaughtering business, and of a compulsory inspection of meat: reporters, Burgomaster Gobbin and Dr. P. Börner. A sixth subject for discussion is proposed by Dr. Lunt, of Cologne, viz.: the establishment of a general law for Germany, on the examination of dead bodies, with, as far as possible, a medical determination of the cause of death.

Cure of Vesico-Vaginal Fistula by Caustics.—Many distinguished Italian and Belgian surgeons maintain that vesico-vaginal fistula may often be cured by cauterization. Dr. L. de Lorge has brought before the Medical Society of Ghent a case which he cured by this method, and which was watched by Prof. van Wetter. Three cauterizations, on the 20th of November and the 4th and 18th of December, sufficed to completely close the fistula, which was at first one centimetre in diameter. The first application was made within a month of the delivery, at which the accident was produced. Dr. de Lorge employed caustic potass, and applied it very freely all round the edges of the fistula. After the application the walls of the vagina were separated by a piece of sponge. The patient did not suffer much pain, and within two days the dribbling of urine was diminished. So the cure progresssd gradually but surely.—*The Doctor.*

The Bark of Mancona.—M. Claude Bernard has communicated to the Academy of Sciences of Paris the researches of Messrs. Gallois and Hardy, touching the toxic effects of this bark. In tropical Africa some tribes use it to poison arrows and to try the guilt of supposed criminals. The tree which furnishes it is called *Erytrophlœum guineanse*, belonging to the leguminous family. It may grow to the height of thirty yards, and, measure two yards in diameter. The inhabitants name it the *tali.* Messrs. Gallois and Hardy have succeeded in concentrating the active principle; and having injected a solution under the skin of Guinea-pigs, frogs, and kittens, they found that it lowered the action of the heart, and finally altogether arrested its movements. This phenomenon has been noticed through a series of experiments, the heart always stopping with the systole. Sulphate of atropine injected immediately after the erytrophlæum did not hinder the effects of the latter.—*Lancet.*

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from June 14 *to July* 13, 1875.

Simons, James, Surgeon.—Relieved from duty in Department of the Gulf, and assigned to duty as Attending Surgeon and Examiner of Recruits, in Baltimore, Md. S. O. 121, A. G. O., June 19, 1875.

Head, J. F., Surgeon and Medical Director.—Granted leave of absence for one month, S. O. 85, Department of the South, June 23, 1875; and leave extended twenty-five days by S. O. 21, Military Division of the South, July 8, 1875.

Cooper, George E., Surgeon.—Granted leave of absence for one month and fifteen days, with permission to go beyond limits of the division. S. O. 79, Military Division of the Pacific, June 25, 1875.

Fryer, B. E., Surgeon.—Relieved from duty at Fort Wadsworth, N. Y. Harbor. S. O. 135, Military Division of the Atlantic, July 10, 1875.

McClellan, Ely, Assistant Surgeon.—Assigned to duty in the office of the Medical Director of the Department. S. O. 85, Department of the South, June 23, 1875.

Storrow, S. A., Assistant Surgeon.—Assigned to duty at Benicia Barracks, Cal. S. O. 63, Department of California. June 23, 1875.

Middleton, J. V. D., Assistant Surgeon.—Granted leave of absence for one month, with permission to apply for an extension of two months. S. O. 118, Department of Dakota, June 24, 1875.

Janeway, J. H., Assistant Surgeon.—Relieved from duty in Department of the Missouri, to proceed to New York City, and, upon arrival, report by letter to the Surgeon-General. S. O. 121, C. S., A. G. O.

Gibson, J. R., Assistant Surgeon.—Assigned to duty at Fort Fetterman, Wyoming Territory. S. O. 73, Department of the Platte, June 26, 1875.

Hubbard, V. B., Assistant Surgeon.—Relieved from duty at Jackson Barracks, and assigned to duty, temporarily, as Medical Director of the Department. S. O. 120, Department of the Gulf, June 25, 1875.

Brooke, J., Assistant Surgeon.—Granted leave of absence for one month. S. O. 130, A. G. O., June 30, 1875.

Koerper, E. A., Assistant Surgeon.—Relieved from duty as Attending Surgeon, Detroit, and assigned to temporary duty at Fort Wayne, Mich. S. O. 124, Military Division of the Atlantic, June 19, 1875.

Matthews, W., Assistant Surgeon.—Assigned to duty at Alcatraz Island, Cal. S. O. 63, C. S., Department of California.

Steinmetz, William R., Assistant Surgeon.—Assigned to duty at Cheyenne and Arapahoe Agency, Indian Territory. S. O. 91, Department of the Missouri, June 8, 1875.

Hall, J. D., Assistant Surgeon.—Relieved from duty in Department of Dakota, to report to the President of the Army Medical Board, New York City, for examination for promotion, and, at its conclusion, by letter to the Surgeon-General. S. O. 135, A. G. O., July 8, 1875.

Skinner, J. O., Assistant Surgeon.—Assigned to duty at St. Augustine, Fla. S. O. 79, Department of the South, June 14, 1875.

DeLoffre, A. A., Assistant Surgeon.—Granted leave of absence for one month on surgeon's certificate of disability. S. O. 106, Department of the Missouri, June 21, 1875.

The following promotions and appointments in the Army of the United States, made by the President, are announced:

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II. APPOINTMENTS.

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Medical Department.

To be Assistant Surgeons, with the rank of First-Lieutenant, to date from June 26, 1875:

BLAIR DABNEY TAYLOR, of New York; CURTIS ETHELBERT PRICE, of California; JAMES CHESTON WORTHINGTON, of Maryland; HENRY STUART TURRILL, of New Mexico; EDWARD TIFFIN COMEGYS, of Ohio; WALTER REED, of Virginia; HENRY SAYLES KILBOURNE, of Indian Territory; JAMES CUSHING MERRILL, of Massachusetts; WILLIAM RICHARDSON HALL, of Missouri; RICHARDS BARNETT, of Mississippi; GEORGE HENRY TORNEY, of Maryland; LOUIS WILLIAM CRAMPTON, of Pennsylvania; JOSEPH YATES PORTER, of Florida; MARSHALL WILLIAM WOOD, of Illinois; MARCUS ELVIN TAYLOR, of New York; WILLIAM LANDS NEWLANDS, of California; JOHN DE BARTH WALBACH GARDINER, of Maryland; ROBERT E. SMITH, of Missouri; WILLIAM CUMMINGS SHANNON, of New Hampshire; GEORGE EDWIN LORD, of Maine; LOUIS S. TESSON, of Missouri; WILLIAM GARDINER SPENCER, of New York; ROLAND LEE ROSSON, of Virginia. G. O. 69, A. G. O., July 2, 1875.

Obituary.

DR. GEORGE SYNG BRYANT, Superintendent of the Eastern Lunatic Asylum of Kentucky, died in Lexington, Ky., June 24th.

M. DEMARQUAY, the celebrated surgeon of Paris, died June 21st, at Longueval, in Picardy, in his sixty-first year. M. Demarquay was of humble origin, but by indefatigable energy had attained great wealth and high professional honors. He was best known as the senior surgeon of the municipal Maison de Santé, and as a frequent contributor to medical literature. The cause of his death was cancer of the stomach, which ran an unusually rapid course.

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Original Communications.

ART. I.—*Deformities of the Spine: Posterior Angular Curvature. Treatment by a New Method.*[1] By LEWIS A. SAYRE, M. D.

TO-DAY we have to speak of deformities of the spine, and of the diseases which may produce them by affecting the bony structure. Deformities of the spine may be a consequence of disease, and the important point in their study is, to arrive at the pathological changes that have given rise to them. Of these deformities there are two: 1. The one known by the name of Pott's disease, or posterior angular curvature, in which there is distinctive inflammation of the bones, accompanied with loss of substance in the bodies of the vertebræ and intervertebral substance; 2. The deformity known as lateral rotary curvature of the spine, in which there is no disease of the bones, but the distortion depends entirely upon irregular muscular contraction.

The one is distortion the result of distinctive inflammation of the bones and intervertebral disks; the other is distortion dependent upon irregular, abnormal muscular contraction.

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[1] Lecture delivered in the Bellevue Hospital Medical College, with additional remarks and cases, 1875.

Sometimes the distortion produced by this action of the muscles very closely approaches in degree and appearance that present when the bones and cartilages are diseased, and is then occasionally mistaken for lateral curvature simulating Pott's disease.

The posterior angular curvature, or Pott's disease, will first engage our attention. You will recollect that the spinal column is made up of twenty-four bones and twenty-three intervertebral cartilages, independent of the sacrum and coccyx. The bones or vertebræ are made up of a body, processes, etc., which in early life are separate, being developed from distinct points of ossification; and complete fusion does not take place until life has become considerably advanced. The bodies of the vertebræ have a soft, spongy texture, while the processes and articulating facets are more dense and firm. The bodies, being spongy, are much lighter and are much less frequently fractured than bones of denser structure; they are also much better adapted to receiving concussion without injury. At the same time the force of concussion is broken by the intervening cartilages, which are also spongy and elastic, and in this manner shocks are dissipated which would otherwise be transmitted to the brain, when a person comes down firmly upon the pelvis or feet. The intervening cartilages are like the rubber buffers under the railway-cars, and are so elastic that when pressure is removed from them they will return to their original dimensions. This is a practical fact that can be demonstrated by measuring a man in the morning before he gets up and again at night after he has been upon his feet all day; when it will be found that he has shortened from one-fourth to one-half an inch, which loss will be restored when he has had a certain number of hours' rest in the horizontal position. Now, there is a disease that occurs in the vertebral column which is called Pott's disease. It may occur at any period of life, but is much more likely to occur in childhood, and especially in those children who are reckless and careless, and expose themselves to all sorts of accidents. It also occurs more frequently among boys than among girls, because they are more exposed to accidents; whereas the lateral curvature is seen more frequently among girls. With regard to this affection, I have arrived at the conclusion, based upon an accurate and carefully-recorded experience, that it is produced almost always, if not always, by some injury to the bone, and is hence *tràumatic* in its nature.

By the profession in general, Pott's disease, above all others, has been considered as essentially of strumous origin; as depending upon a tuberculous diathesis, and not occurring unless constitutional dyscrasia is present; but, in my own judgment, it much more frequently depends upon some injury than upon any constitutional condition. The very fact that hundreds of people are walking about distorted, in many cases to a great degree, and yet remain in this condition and enjoy an average degree of health, until they have reached a good old age, is evidence that the disease which has produced the deformity is not tubercular in character.

The accidents which produce this disease are usually concussions and blows.

Those children who are usually full of play may in some of their careless pranks jump from some height, and come down straight without bending the knees or hips, thereby giving a sudden and severe concussion to the bodies of the vertebræ and their intervertebral disks of cartilage, and in this manner disturbing some centre of ossification to such an extent that inflammatory action follows, and the case terminates in inflammatory softening and disintegration of the bone itself.

Many times direct blows are received which are sufficient to injure the bones and give rise to subsequent trouble of a serious character. It sometimes happens that even the transverse processes of the vertebra become fractured, and the injury passes unsuspected and unrecognized, and is accidentally found at *post-mortem* or in the dissecting-room.

After such disturbance or separation of one or more ossific centres of the vertebræ, several months may elapse before attention is drawn to the case, and perhaps by that time the bones have been partially destroyed and the distortion developed. Then it is said at once that the exhausted condition which may be present is evidence of constitutional cachexia, whereas it is simply the result of long-continued suffering from a local disease dependent upon some direct injury to the parts involved.

Abscesses, commonly known as psoas or lumbar abscess, are quite frequently developed in connection with this disease, and the pus formed among the diseased vertebræ becomes imprisoned by the fibrous tissue with which it is surrounded, and does not reach the surface, in many cases, as in an ordinary abscess, but must travel along under the sheath of the tendons until it reaches the point where psoas abscesses usually show themselves. This may require a long time, and give rise to serious constitutional disturbance. In some cases these abscesses penetrate the tissues and present themselves between the ribs. When the disease has advanced so far that inflammatory softening and degeneration of the bone are present, the weight of the body upon the inflamed and degenerating parts will cause absorption to take place, which will go on most markedly upon the anterior portion of the bodies of the vertebræ, and, as they lose their thickness at the point, the bodies fall together, and this causes the spinous processes to assume a peculiar-shaped prominence, which has given rise to the name posterior angular curvature.

The *symptoms* of this disease vary according to its location in the spinal column. When it has advanced far enough to produce a deformity, there is usually no difficulty in diagnosis. It may be present, however, long before any deformity becomes developed, and the important point is to be able to recognize it at that early period. The symptoms, at the beginning, are sometimes very obscure; but the nerves that make their exit from the spinal canal at points opposite to the seat of the disease become more or less involved, and will manifest such disturbance by symptoms developed at their distal extremities. For instance, if the disease is situated in the cervical region, long before any distortion appears the patient will complain of difficulty in swallowing; many have a choking sensation as if there was a string around the neck; difficulty about the larynx, producing an irritable and continued cough; pain in the thorax, etc. Such symptoms may be the only ones present that will attract attention; but they are sufficient to arouse your suspicions, and if you cannot by means of the laryngoscope and physical examination of the chest detect any disease of the larynx or lungs, or any of the thoracic organs, sufficient to account for the symptoms present, you should at once make a thorough examination of the spine.

When the disease is in the dorsal region the patient very often complains of pain in the lower part of the chest and upper part of the abdomen ; also a constricting sensation as if a band was around the body; complains more or less of indigestion and flatulence, and may have been treated for dyspepsia. He may also complain of pain in the chest, pain about the heart, and perhaps may have been treated for rheumatism.

Again, when the disease is lower down in the spinal column, he may have a sense of constriction about the abdomen, may suffer from constipation and flatulence, and perhaps have been treated for worms.

When the disease is still lower in the spine, the leading symptoms may be those referable to the bladder and rectum. The *chief* symptom in the case may be a frequent desire to pass the urine. Then the patient may also suffer from streaking pains down the thighs.

When such symptoms are present, and they cannot be explained by the presence of some well-recognized disease, always go back to the point where the nerves distributed to these regions make their exit from the spinal canal, and carefully examine the bony structures which surround them.

Early in the progress of the disease reflex contractions are excited among the muscles, which result in a change in the appearance and action of the child, that is worthy of special attention.

Every joint of the lower extremities is bent for the purpose of preventing any concussion from affecting the bodies of the vertebræ. The chin is made to project; the shoulders become elevated; and it is impossible for the child to stand upright and receive any concussion whatever which may be communicated to the bodies of the bones without suffering pain. The muscles of the back are held rigid in order to prevent any movements of the bodies of the vertebræ upon each other. The child is unable to stoop down and pick up any object upon the floor; but, if asked to do so, he begins by bending his hips, and then his knees, and finally reaches the object by squatting down to it. These patients never bend the back, for bending the back presses the bodies of the vertebræ together, and gives rise to pain; consequently all the movements of the child are directed in such a manner as to prevent any motion in the spinal column.

When walking about the room the child will reach with his hands from one article of furniture to another, making careful calculation that he shall not be deprived of the support furnished by one article before he receives support from another. If he cannot obtain any support by catching hold of various articles within reach, he will rest his hands upon his thighs in order to transmit the weight of the head and shoulders through the legs to the ground, thereby giving them support without bearing upon the diseased vertebræ. The patient instinctively makes every position which he takes serve to lift the weight of the shoulders and head from a spinal column which is in a state of disease. When, therefore, a case presents itself in which the patient complains of cough, indigestion, disturbances about the bladder or rectum, or constant and persistent pain in the chest or abdomen, and you are not able to detect any disease of the lungs, stomach, liver, or other organs which will account for the development of such symptoms, I have to repeat to you again, do not fail to examine the spine. The question now arises, How is this to be done? In the first place, put some object upon the floor and ask the child to pick it up, and then carefully note the position he assumes while performing the act.

If the vertebræ are diseased he will squat down and pick up the object in the manner just described, and rise up in the same careful way that he went down, keeping the back as nearly straight as possible, and allowing no movements in the spinal column which he can prevent. He never bends over like a healthy child, but keeps his spinal column as nearly erect as possible.

You will then strip the child naked and lay him across your lap, face down, with the arms over one thigh and the legs over the other, and then gradually separate your thighs. When that is done, the first thing you will notice, probably, will be that the child takes a long breath, a long-drawn sigh of relief; and this leads me to speak of another symptom which I have omitted to mention. When the child is walking about, particularly if the disease is in the dorsal or lower cervical region, he breathes in a short, grunting manner, because of the constant effort on the parts of the muscles to hold the trunk still. In other words, there is a constant effort to put a muscular splint in the child's body to prevent motion in the spinal column, and thus the child, by his short, grunting breath, is trying to teach us doctors what the indications for treatment are in his case. The pressure upon the intercostal nerves is sometimes so great as to produce almost spasmodic respiration. Now, by placing the child across the lap in the manner described, and then making gradual extension upon the spine by separating your thighs, thereby relieving the nerves of all pressure and the muscles from all irritation, the first thing that will be noticed is this long sigh of relief—a *full inspiration* and a *complete expiration.* As long as the child is held in that manner he will be perfectly comfortable, and breathe easily, if you do not carry the extension so far as to produce reflex muscular contraction. Then close the limbs again, and the muscles are at once excited to contract, and the child again begins his short, catching respiration.

There may be more or less spasmodic muscular action all over the body when the extension is removed; but, if there is not, it can be very easily developed by placing one hand upon the head and the other over the bottom of the sacrum, and crowding the bodies of the vertebræ together. The instant that is done, you will see a spasm, probably of both legs and arms, and the child will cry out on account of the pain; and, the moment extension is made, he is all easy again.

Now, all this can be done when the disease is in the anterior part of the *bodies* of the vertebræ, or in the intervertebral disks; but it may be, in the case which you are examining, that the anterior bodies of the bones and the disks have not yet become involved, and yet the child is suffering from Pott's disease. For, when the dorsal portion of the spinal column is affected, the disease does not always expend itself upon the anterior portion of the bodies of the vertebræ at first, but the part most extensively involved may be upon the sides of the vertebræ, where they form a junction with the ribs.

In these cases the blow or injury is generally received upon the sides of the body, and the heads of the ribs are driven against the vertebræ with such force as to give rise to a starting-point for an inflammation. Consequently you must not be content with examining the spinal column as far as the bodies of the vertebræ alone are concerned, but you must test the sides of the vertebræ by pressing the heads of the ribs against their articulating facets. Very frequently you will not be able to develop any symptoms of spinal disease until you press upon the ribs in this manner. You may be able to press the spine down without producing pain; percuss the spine without producing pain, and the spinal column may apparently be straight, all of which might lead you to the conclusion that it is not diseased; but pressure upon the ribs, which will bring their heads in contact with the articulating facets, gives the patient pain, and at once you have evidence of diseased vertebræ. By pressing upon the ribs separately in this manner, the exact location of the disease can be determined.

When the child is placed across the lap, and extension is made, a moderate downward pressure upon the spinous processes will make them more comfortable, because it removes the pressure from the anterior portion of the bodies of the vertebræ.

The fact that pressure can be made over the spinous processes without causing pain is regarded by many as evidence that no disease of the bones is present. But it is the anterior portion of the body of the vertebræ that is affected, and, when these begin to give way, the spinous processes begin to stick out, and by crowding upon them we remove the pressure from the diseased surfaces, and consequently the suffering of the patient is diminished. There is another item in the way of examination that may be of service to you in making out obscure cases, and that is the use of ice and intense heat. There are some cases in which no definite symptoms can be obtained by examining the patient in the manner described. In such cases the application of ice or intense heat may be of service; for the nerves made irritable by the disease will receive impressions much quicker than they do normally, so that when a piece of ice, or a vial or thimble containing hot water, is passed along the spine, no response is obtained until the point opposite the disease is reached, when there will be a sudden move of the body as if to get out of the way of the irritant. In this manner you will sometimes be able to spell out cases which cannot be easily explained in any other way.

And also by the delicate surface thermometer, recently devised by Dr. Seguin of this city, you will be able to detect an elevation of temperature over the inflamed part that you could not discover in any other way.

Partial or complete paralysis, of one or both lower extremities, sometimes occurs during the progress of Pott's disease, but occurs more especially when the disease is in the lower portion of the spine, so that the nerves which are given off to supply the lower extremities become involved. It depends either upon effusion into the cord, or pressure upon it by the distortion of the bones, and in the first instance will gradually improve, as absorption of the effusion takes place; but in the latter instance, prognosis, so far as restoration of power is concerned, is very unfavorable.

As to the theories relating to this form of disease, I think it hardly worth while to consume your time in discussing them, for you can read them at your leisure in all the text-books upon surgery. I simply wish to make these points: that it is the result of injury in almost all cases; that this injury is followed by inflammatory action; that it can be diagnosticated by making extension and counter-extension upon the spine, and by pressure upon the sides of the vertebræ; also by symptoms referable to the distal extremities of the nerves involved in the disease, long before the deformity is produced.

Mistakes need not be made in diagnosis, and it is also of the greatest importance that the disease should be detected early, before deformity appears, for, once having taken place, it is irreparable. This brings us to the subject of *treatment.*

In the earlier stages (and it is during this period that treatment is most important) there is nothing which can compare with *rest*, absolute and complete, in the horizontal posture. For pressure upon the parts diseased, when the patient is in the upright posture, causes more rapid softening, degeneration, and absorption, and in this manner a permanent deformity may be very rapidly developed, such as you see in the specimens before you.

If the disease is situated low down, as in the lumbar region, rest in the horizontal posture is especially required. If it has progressed far enough to produce any distortions, you will be obliged to prepare a bed that can accommodate itself to the projecting spinous processes. This indication is met by either the air or water bed; but I prefer the air-bed, because it can be emptied and filled with much less trouble. When you have placed your patient upon one of these beds, if there is tenderness along the spine, or any evidences of active inflammation, ice along the spine, by means of ice-bags placed upon either side opposite the seat of the disease, will be of the greatest service. If the pain is acute, a half-dozen leeches may be applied, and repeated every eight or ten days, and then followed by the ice-bags. If the skin is too sensitive to the influence of cold to bear the immediate contact of the ice-bags, a few thicknesses of muslin may be interposed.

But *rest* is the great feature of the treatment. You must remove all pressure upon the parts involved, and the best possible manner in which that can be done is to place the patient in the horizontal posture upon a water or air bed.

At best, however, it will take a long time for these patients to get well; therefore some means must be devised which shall not only afford the benefit derived from rest, but at the same time permit them to have the benefit of fresh air and sunlight. This can be accomplished by placing the bed upon wheels, so that it can be rolled about to suit the convenience of the patient. Another excellent method for accomplishing the same thing is, to dress the patient in the wire cuirass; in other words, make this apparatus take the place of the bed. In order that the cuirass may be worn with ease and comfort, I have an India-rubber bed made to fit the instrument accurately, and this is filled with air, and makes an elastic cushion for the patient to lie upon. Of course you must not forget, while using this dressing, to remove the patient occasionally, and give free movements to the joints of the lower extremities, lest anchylosis take place.

Give your patient all the good food that he can properly assimilate; and doubtless he will also require some remedies to regulate the stomach and bowels, and invigorate the appetite, such as some of the ordinary stomachics and tonics, and perhaps a little champagne or brandy. Cod-liver oil, cream, milk, are all serviceable; in short, every thing should be done which is of possible service in building up the system. These measures are resorted to, not with the idea that there is constitutional taint to be overcome, but because it is the only way in which the system can be brought into the condition which best favors the process of repair.

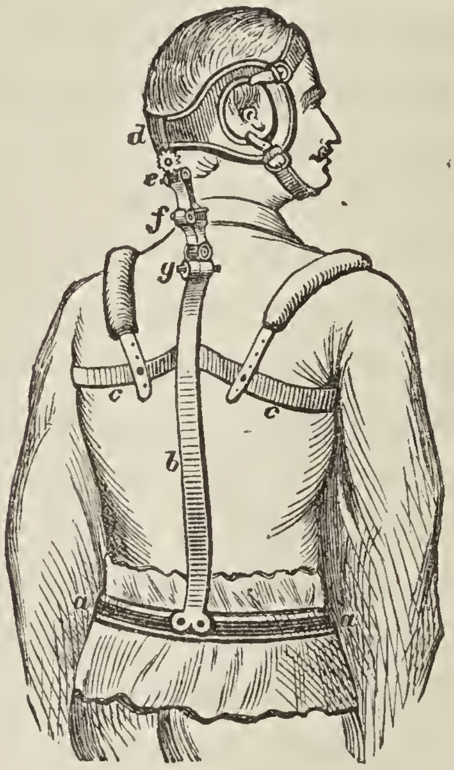
Blisters, issues, and setons, applied for the purpose of keeping up a long-continued counter-irritation and discharge, are positively injurious, and under no circumstances whatever should such measures be adopted. In the first place, the child is already sufficiently disturbed and prostrated by the pain attending the disease, without tormenting him any more by agents which, from their very nature, will produce pain; and he is also already sufficiently emaciated, without establishing a suppurative process to make him more so.

Rest in the horizontal posture, and continued until you can bring the diseased surfaces of bone together without producing pain, is the only safe rule to guide you in giving the patient permission to assume the upright posture. When he is permitted to assume this posture, it must always be attended by some artificial support which shall remove all pressure from the bodies of the vertebræ. This can be given by straightening the spinal column in such a manner that the weight of the body is borne by the *transverse* processes, and not by the bodies of the vertebræ, for these processes, having dense structure, can bear pressure without much danger of producing erosion.

For this purpose, Dr. C. Fayette Taylor, of this city, has devised a brace which possesses some elements of great practical value. The important feature of the instrument is the hinge-motion, afforded at a point opposite the disease in the vertebral column. (Fig. 1.)

The idea involved in the construction of some instruments, namely, that of lifting the bodies of the vertebræ apart by placing a belt about the hips, and a support under the arms, is simply absurd, because the mobility of the scapulæ is so great that they can be lifted up, as far as the endurance of the patient will permit, without relieving the weight of the body. The principle of treatment can be carried into effect by means of Taylor's original brace, when the disease is located in the dorsal or lumbar regions; but when the disease is in the cervical region, additional apparatus will be required. For this purpose, the same brace may be used; but Dr. Taylor employs a chin-piece in these cases, which I regard as an element of barbarism and cruelty. The instrument is applied to the back as previously mentioned, and upon it rests a circular piece of iron, which is furnished with a horn cup that receives the chin, and holds it in a firmly-fixed position. The idea involved is, that the elevation of the chin will remove pressure from the diseased cervical vertebræ, and, in order to make the relief *constant*, the chin must be secured in a fixed apparatus. Now, in order to eat, the child must drop his lower jaw, and eating is an absolute necessity; hence, every motion of the chin, made with sufficient force to open the mouth wide enough to permit the introduction of food, is communicated through the iron collar to the

Fig. 1.



spinal column, and the result is, *compression of the bodies of the vertebræ*—the very thing we wish to avoid. Consequently, this part of his instrument aggravates rather than improves the disease, and betrays a most woful want of ordinary anatomical knowledge. Indeed, the doctor himself made the reply, when he was asked how the child could eat when the instrument was adjusted, that "he must lift up the top of his head like an alligator!"

I have been able to meet the indications, when the disease is in the cervical region, by attaching to the brace a standard which passes up to the occiput, curves over the posterior surface of the head, and when it has reached the frontal bone it is met by a transverse piece also curved, and so attached as to permit of rotary motion of the head. To the transverse bar is attached at either extremity an elastic band, to which is attached a kind of pocket, made of firm cloth, which is to receive the chin. Another band is also attached to the transverse bar, and passes about the occiput.

Now, the occiput being supported, any degree of elevation desired can be given to the chin, and, at the same time, it can be depressed with ease, because the support is made by means of elastic bands. (*See* Fig. 2.)

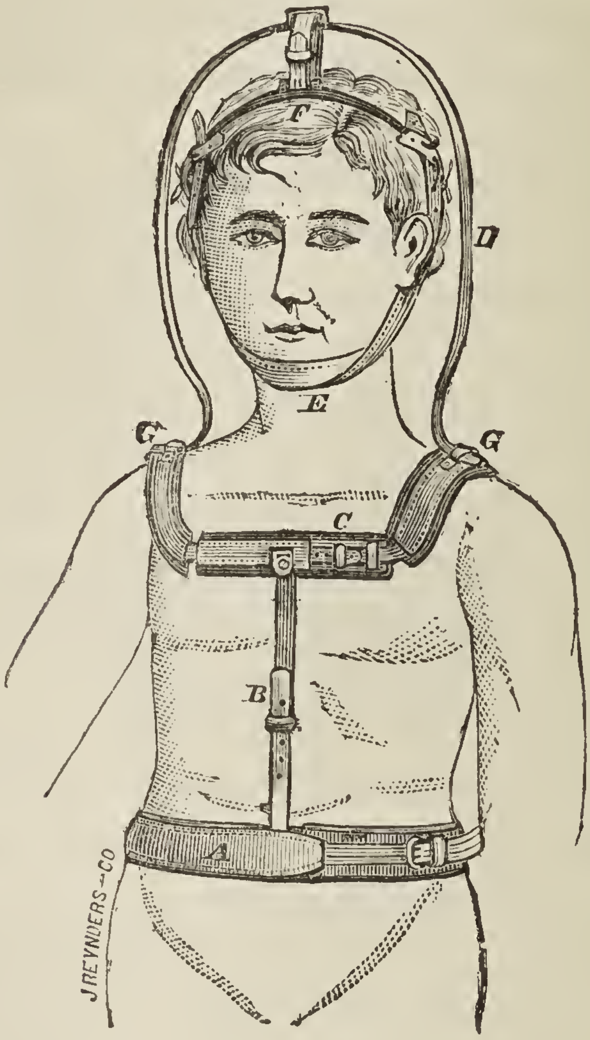
When the disease is confined to the cervical region, the dorsal and lumbar support will not be required, and the cervical portion of the apparatus can be attached to shoulder-straps, and used independently of the brace.

Another apparatus to be used when the disease is on the dorsal or upper lumbar region is the raw-hide jacket, as manufactured by Darrach, of Orange Junction, Essex County, New Jersey.

It is simply a perforated piece of raw-hide, moulded over a plaster-cast so as to perfectly fit the trunk, and fastened in front, at the lower portion, with a *non-elastic* band, for the purpose of giving a firm point of support, and at the upper portion with elastic bands, so that respiration may go on freely. It has a window behind which receives the projecting spinous processes, and then such an amount of pressure as the patient can bear is made upon them by means of a cap fastened with elastic bands.

If the disease has involved the cervical vertebræ, an additional support for the head can be added, or the one already described can be attached to the body-support.

Fig. 2.



If you are not able to obtain any of the apparatus described, you may take a piece of ordinary sole-leather, dip it into cold water until it becomes perfectly soft and flexible, and, after the child has been straightened out as much as can be done with safety, mould it to the body, and secure it by means of a roller-bandage.

Again, they may be dressed with plaster of Paris, as you would a fracture.

The thought had occurred to me that this might be done, but I had hesitated through fear that respiration would not be properly sustained if the child were completely enveloped in such a fixed apparatus.

However, a child, four years of age, was brought to my office six weeks since, from the country, with Pott's disease, or posterior angular curvature of the last two dorsal and first upper lumbar vertebræ, unable to stand, very much emaciated, and the right limb paralyzed—probably from pressure upon the spinal cord. The child had suffered the usual symptoms of this disease for more than a year past, having been treated for worms, incontinence, and pain in the stomach, the disease of the spine never having been suspected until a few weeks ago, when the physician who had the child in charge sent him to my office.

The patient's parents were too poor to buy a Taylor's brace which I intended to put upon it, and the disease, in fact, had so far progressed as to require of the child the recumbent position for some time before even a Taylor's brace could be used to advantage. As I before said, they were too poor to buy any mechanical apparatus, and, as perfect quiet of the spinal column was requisite, I had the child held up by the arms (the weight of the body acting as an extending force), pinned his little flannel shirt around his thighs, stretching it over his body smoothly, and, commencing at the pelvis, applied rollers saturated with plaster of Paris over his entire trunk, the same as you would to the thigh in dressing a fracture.

The only fear I had in making this application was of constricting the chest so as to interfere with respiration; but, as the child cried lustily during the whole operation, this fear was removed. He appeared able to press the diaphragm down so as to give plenty of room for respiration, notwithstanding that the dressing was entirely around the thorax.

He was held in this position, suspended by the arms, for twenty or thirty minutes, until the plaster became set. Then the cuirass, as it might properly be called, was divided in the median line from the sternum to the pubis, when, of course, his respiration became perfectly easy. The lower portion around the pelvis was then secured by a roller, making it a firm support, and the upper portion of the dressing was tied at various points by an elastic bandage, allowing it to expand for respiration; and, as his parents say, he has been perfectly comfortable ever since, has grown quite fleshy, and is now able to walk about without resting his hands upon his knees.

Another child was brought to me only an hour ago, and

I present him to you to show the practical effect of the application of this plaster-of-Paris dressing, as it is the first time I have used it in this way. I have frequently employed the plaster extending two-thirds around the body, which I have termed "turtle-shelling," but never before carried it clear round, encircling the entire body. As you all know, the streets are nearly impassable from the small icebergs interspersed here and there, and therefore we have been jolted in the most severe manner while coming in a carriage from my office to the college, and yet the child has never complained at all, although the parents say that it was impossible to move him before without using the greatest care.

We will remove the cuirass, for the first time since I applied it, six weeks ago. The angle of the curvature is very much less sharp than when the instrument was applied, and the child's general health has improved immensely. [The professor then showed the plaster-cast to the class, the mother holding the child in her lap in the mean time. It was then readjusted, when the mother remarked that the child could now sit up, but when the dressing was off it could not sit up at all—which, as the professor mentioned, was the best proof of the efficacy of the treatment.]

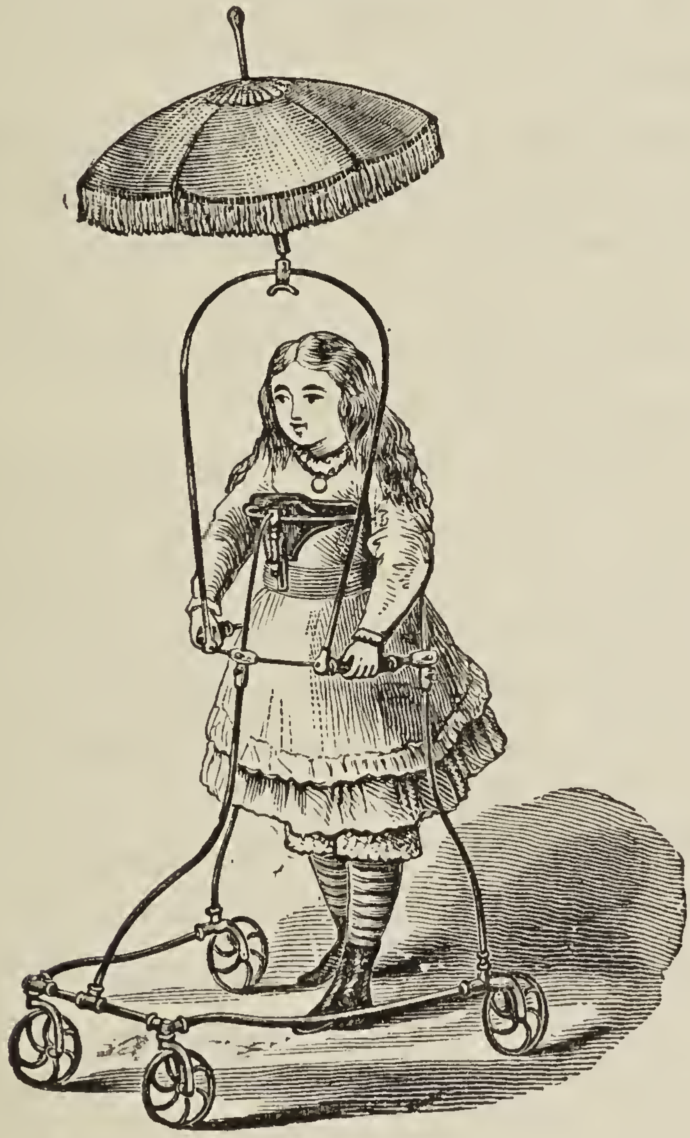
The advantages of this plan are these: Its simplicity, its economy, the material for its construction being attainable any where, its ease of application, the readiness with which it can be readjusted as the growth of the child requires, and the accuracy of the fit, giving the child more comfort than any instrument which could be made, unless over a plaster model, which would be very expensive. The objection to the use of plaster is that it is not very clean; but this can be obviated by using starch, flour and eggs, silicate of sodium, or any thing else that will assume the shape of the body and retain its form.

It is not altogether improbable that this simple dressing may yet supersede all the complicated and expensive apparatus we have heretofore employed in the treatment of this disease.

When the deformity has been produced, the position is fixed, and any attempt to completely correct it, or to break up the partial consolidation that may be present, is unjustifiable. All that can be done under such circumstances is, to hold the body as well as possible in the position which it is made to assume, and permit the bones to get well with the deformity remaining.

A most excellent and serviceable adjuvant to all these supports is the wheel-crutch, invented and manufactured by Mr. Darrach, of Orange, N. J. (Fig. 3). The idea involved in the construction of the crutch is to keep the patient in an upright position, with support under the arms, and avoid the intermitting strain and swinging action attending the use of the ordinary crutch. By sustaining the body of the patient in a pendant position without fatigue, the diseased parts are relieved of pressure, while the patient can have all the benefits of exercise without injury. The erect posture, however, is not desirable except so far as is absolutely necessary to afford

FIG. 3.



exercise and attain fresh air; but, when the erect posture is assumed, the trunk should be supported by artificial means, applied in such a manner as to remove all pressure from the bodies of the diseased vertebræ, until complete consolidation has taken place. This crutch, therefore, answers a very good purpose.

Plaster of Paris as a Dressing in Pott's Disease.—Since this lecture was delivered, the prediction then made has been fully realized (July, 1875) by the application of the plan suggested, in more than thirty cases, with the happiest results. I, therefore, feel quite justified in proposing it as a proper plan of treatment.

At first I was afraid that the thoracic compression would interfere with respiration, and therefore divided the cuirass in the median line as soon as the plaster was set; I then secured the lower or pelvic portion with a firm, non-elastic roller, and the upper or thoracic portion with *elastic* bands to allow more free lateral expansion of the chest.

Practical experience, however, has demonstrated that this is not necessary; but, on the contrary, is injurious, particularly if the disease involves the sides of the bodies of the dorsal vertebræ, and that the complete circling of the thorax in the immovable plaster bandage in these cases gives the greatest relief, as by this means the ribs are held absolutely motionless, and the respiration is compelled to be diaphragmatic and abdominal. When the thorax is thus firmly secured, the anus and perinæum will rise and fall synchronously with the diaphragm, and the respiration be carried on without difficulty, as long as these parts are free from pressure. Pressure upward against these parts with the hand produces a feeling of suffocation. It is therefore necessary, when the thorax is thus secured, that the patient should sit upon a chair with a hole in the seat, like a close-stool, or use an inflated India-rubber ring, like the ordinary life-supporter.

As it is difficult for an assistant to hold these patients suspended long enough to apply the dressing and have it set properly, Mr. Rynders has contrived a very convenient apparatus for that purpose, which I have found most useful. It consists of a curved iron rod, with a hook in its centre and at each end. From the end-hooks loops pass down under each axilla, and also to the chin and occiput, to support the head. To the centre hook is attached a pulley, and the opposite pulley being secured to the ceiling or some other safe attachment of sufficient height, the patient is easily elevated by the bands under the axilla, chin, and occiput, until the heels cannot touch the floor.

In some cases of an adult, or even very heavy children, the pressure on the axillary plexus of nerves produces numbness of the fingers. In such cases I have found great relief from applying an additional roller-bandage from the axilla across the chest to the opposite hook, as seen in Fig. 4.

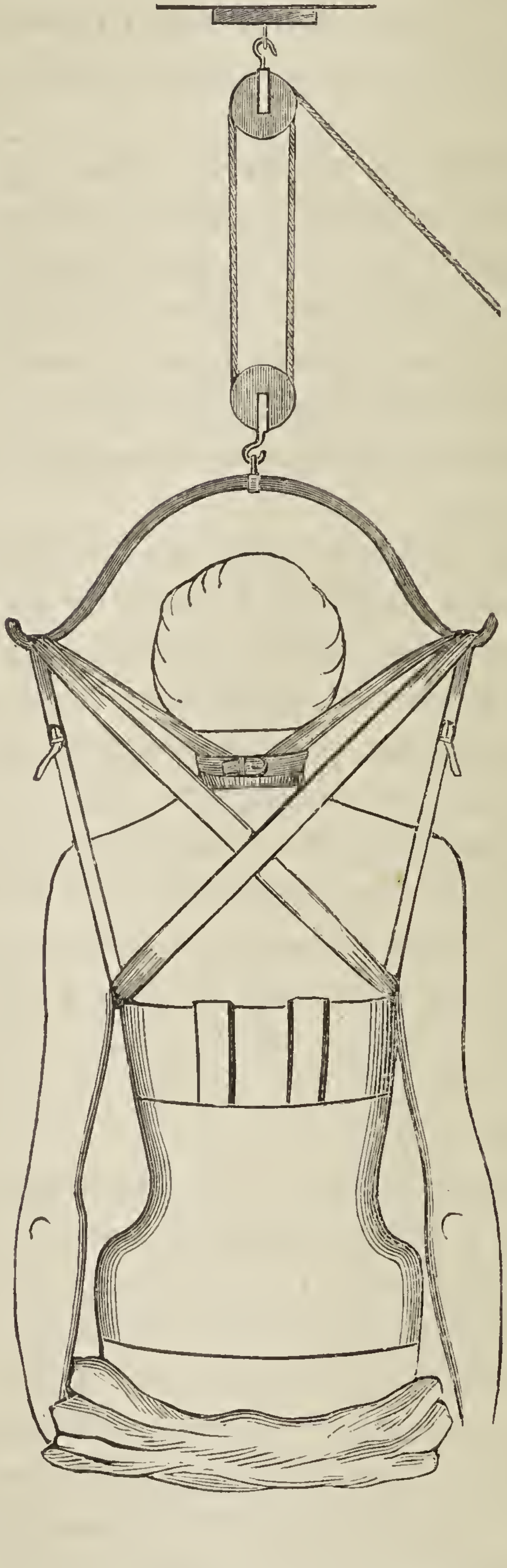
This plaster-dressing can be changed or removed as often as necessary to accommodate the increased growth or development of the patient.

The ease of application in any section of the country without the trouble and expense of resorting to any specialist or instrument-maker; the perfect comfort given to the patient by protecting the diseased parts from pressure, without galling or chafing any other part, as is almost always done even by the best-fitting instrument; and the absolute immobility which can be obtained by the plaster-bandage, will, I feel confident, give this plan the preference over any yet adopted for the treatment of Pott's disease, or caries of the spine.

To illustrate the advantage of this plan of treatment, as well as to point out some modifications in its application in certain peculiar cases, I will narrate a few of the cases in which it has been applied:

Case I. *Pott's Disease.*—John Jordan, aged five years, of perfectly healthy parents, had hip-disease in 1871, of which he had been completely cured. In January, 1873, Pott's disease appeared, in the lumbar region, for which no cause could be assigned. A wheel-crutch was used until April in the same year. In May, 1874, a raw-hide jacket was fitted to the child, which gave perfect relief. The child was again seen in 1874, when he looked well. He continued to run about until June 4, 1875, during which time he had outgrown the jacket, which was removed and a plaster-of-Paris dressing applied. The child was suspended by his shoulders, a flannel shirt having been adjusted to his body; then a bandage saturated with plaster of Paris was carried around the pelvis and up to the axilla.

Fig. 4.



The plaster dried readily, and the child was sent home, feeling perfectly comfortable. Was sent for that evening in great haste, the mother saying he could not "*lay or sit*," and found him suffering from too great compression of the thorax. I therefore made an incision of about three inches from the top, through the plaster-of-Paris dressing, which gave instantaneous and perfect relief. This dressing was worn until July 26th, when it was found that a fold in the shirt had produced uneasiness. It was then taken off, and a slight abrasion over the crest of the left ilium discovered. The child came to the office on the 30th, when the abrasion was found healed, and was told to return the next day, when the dressing would be reapplied.

July 31st.—Another dressing was applied, the child being placed in the apparatus, the body being the extending power. The plaster of Paris was applied as before. After the plaster had dried, the child walked about the office, feeling very comfortable.

On the following Tuesday he went on an excursion, and up to this day (August 12th) has suffered no pain.

CASE II. *Pott's Disease, from Injury.*—Mr. W. was brought to me, July 26th, by Dr. Arrowsmith, of Keyport, N. J. The patient gave the following previous history:

Was out riding and thrown from his wagon, striking on his left side and back; was unable to move for a short time; about two hours afterward regained perfect control of himself. One week later, as he did not feel very well, sent for a physician, who said he thought he had inflammation of the bowels, caused by his injury. Was treated for some time, and got no relief. Latterly he was examined by other physicians, who differed in their diagnosis, and, not being satisfied with their opinion, he went to St. Luke's Hospital, where he remained and had applied a Taylor's brace, which gave him no relief. Was brought to my office, when I examined him and pronounced it Pott's disease.

Present Condition.—Patient very much emaciated. Position as seen in figure. Constriction around the abdomen causes intense pain. Cannot walk or lie on his back with any comfort. Can only lie on abdomen; *even then* requires to be pulled out, to be free from pain; suspending the body, the arms being thrown over the shoulders of another person, gives perfect relief. I applied the plaster-dressing above described, in presence of Drs. R. Taylor, A. A. Smith, and others, and when it was dry he said he was more comfortable than he had been for twelve months. The next day he called and said the principle was correct, but that it had been applied imperfectly; his back had a vacant place on each side the entire length, and that it wanted filling up.

He was so very thin that the spinous processes projected to such a degree that the bandage bridged over a vacant space on each side, and he felt the want of this support. Not having time to apply it on this day, I made an appointment for the following Friday.

When he came on Friday, he stated that he had made another discovery: that he had no room to put his dinner, and wished me to fold a pad over the abdomen, and bandage over it, so that, when the plaster had become set, it could be pulled out, and the rest of the dressing not be disturbed.

I redressed him, assisted by Drs. R. Taylor, Yale, Rose, and my two sons. On account of the pain from pressure in the axilla, I applied additional support, as seen in figure. I then placed several strips of bandage, saturated with plaster, on each side of the spine.

I then dressed it as usual, after padding the abdomen as suggested.

Patient called at my office five or six days afterward, and stated that he had never been so comfortable since he was hurt.

He has now gone on a fishing-excursion, and the last heard from him was that he was perfectly comfortable.

Case III. *Pott's Disease.*—Michael Nally, aged three years, of healthy parents. Was always healthy till December, 1874, when his mother noticed a stiffness of the right side. He was treated for hip-disease, without relief. March, 1875, the mother noticed a swelling on the right side of the spine, which gradually increased to the size of a hen's-egg. Was examined in my clinic and aspirated. I found pus, and a free incision was made; also on examination found Pott's disease in lumbar vertebræ. He was then dressed with plaster of Paris, and a fenestra left for the escape of pus.

The child wore the dressing six weeks, when he began to complain of pain. The plaster was then removed, and it was found that an abscess had formed below and to the right of the old one. A free incision was made, which afforded great relief. Nothing further was done till the abscess had partially healed. Plaster was reapplied. July 26th, before it had perfectly dried, a fenestra was made to allow the dressing of the abscess. Since that time the child has been perfectly comfortable and free from pain.

Case IV. *Pott's Disease; Injury.*—Minnie O'Brien, aged three years, of healthy parents. About November, 1874, she fell down-stairs. Shortly after she began to complain of a pain in her stomach. The mother found that the abdomen was very hard and swollen. The child has not been able to stand erect since; the mother states that she was always comfortable when lifted by the arms. Three months a ago small lump appeared in the lumbar vertebræ, about the size of a hickory-nut. July 28, 1875, she was brought to me, and on examination I pronounced it Pott's disease. Child was suspended in the apparatus and I applied the plaster-of-Paris dressing on the 4th day of August, in the presence of several physicians, since which time the child has been perfectly comfortable and free from pain.

Art. II.—*Observations on Toxic Amblyopia, including Course, Prognosis, and Treatment.* By Charles S. Bull, M. D., Ophthalmic Surgeon to Charity Hospital, Microscopist to the Manhattan Eye and Ear Hospital.

Clinical observations have long since taught us that amblyopia and even amaurosis may exist without presenting any objective signs visible with the ophthalmoscope. Cases of this kind are by no means rare, and yet the frequency of their occurrence does not aid us materially in clearing up the difficulties which sometimes stand in the way of a satisfactory explanation of their causation, and of the pathological nature of the process. We know that certain toxic agents, when introduced into the system continuously for a length of time, produce changes in the interior of the eye, differing in their duration as well as in the manner in which they affect the tissues of the organ. Some of these objective symptoms come on very rapidly and are of but transient duration, while others are slow in their onward progress but permanent in their nature.

But sometimes we meet with cases of toxic amblyopia, where the subjective symptoms are well marked, and yet the ophthalmoscope reveals not a shadow of pathological change, or else such slight deviations from the normal as to make us really hesitate to accept them as the result of a toxic influence.

Among the most potent in action of toxic agents, as well as lasting and pernicious in results, alcohol and tobacco stand preëminent, although we must not omit lead from the category, some influential writers to the contrary notwithstanding. These poisons may act in two ways, either through the vascular or by the nervous system. For instance, in its immediate effects, alcohol resembles agents which act on the vascular system, while in its remote results the pathological changes are found in nerve-tissue. We very often see in the fundus of an eye changes in the retinal vessels, but how far indicative of corresponding intracranial lesions these may be is a somewhat difficult problem to solve. Whether these alterations in calibre of the retinal vessels are due to certain pathological conditions of those vaso-motor nerve-centres which preside over the intraocular vessels alone, or whether they go hand-in-hand with similar changes in the general vascular system, has never yet been determined. Clinical observation, however, teaches that a drug like alcohol first affects the vascular system, and this can often be seen to good advantage in the eye, where a hyperæmic or anæmic condition of the retina and optic nerve is observed, according as we see the disease in its incipiency or later in its course. If, then, we have settled to our satisfaction that the changes seen in the retina and optic nerve in cases of toxic amblyopia are directly indicative of similar conditions in the brain or spinal cord, or both, the question of locality again comes up in a still narrower form, as to where these toxic agents first operate in producing their pathological changes. Some writers believe that the symptoms are due to the poisoned blood acting on the medulla oblongata, and Dr. Aldridge, of the West

Riding Asylum, thinks that this theory is confirmed by the fact that there are certain inflammatory affections of the spinal cord which are accompanied by hyperæmic and atrophic changes in the optic nerve and retina, and these are entirely independent of any extension of the inflammatory process along the base of the brain and optic nerves.

The cases of amblyopia without ophthalmoscopic lesion, in which the history points to the abuse of alcohol or tobacco as the cause, are not uncommon, and naturally such observations lead us to make ourselves acquainted with the views of authorities on these subjects, with the hope of elucidating the exact manner of their causation. In speaking of the effects of alcohol upon the nerve-centres, E. L. Fox considers that there is a pathological process carried on in the intimate structure of the cerebral cell, starting with irritation and leading to steatosis of the histological elements, and that it is not the alcohol itself which causes the morbid phenomena, so much as its chemical products, formed within the system. Of course, the effects of alcohol vary in different individuals, for there are no two persons who absorb it with equal rapidity, or in whom its oxidation occurs at a corresponding time. Hutchinson thinks that there is some preëxisting peculiarity of the nervous system of those who become the subjects of toxic amaurosis from alcohol or tobacco, for he not unfrequently found, particularly in tobacco-blindness, that these patients had had unusual difficulty in learning to smoke, and had throughout life displayed uncommon susceptibility to its influence.

There are no special pathological appearances found in the brain or spinal cord, at autopsies, which can be regarded as constant effects of these toxic agents. Most writers make a distinction between alcoholic amaurosis and that caused by tobacco, but the abuse of these two agents is so intimately and constantly united, that such distinction seems to me almost an unnecessary refinement. The result of tobacco-poisoning of the nerve-centres, however, is said to differ from that of alcohol, in that there are no traces of local disorganization to be seen. Loureiro would have us believe that there has never been a single case of amaurosis due solely to poisoning by tobacco, and that the injurious effects of the drug upon the organ of vision only appear when general nicotism or alcoholism, or some other general affection of the nervous system or intestinal apparatus is present. Sichel is right in saying that the two forms of amblyopia, due to tobocco and alcohol, rarely occur singly or isolated, but he is mistaken in affirming that the course of both forms is slow and steady, for many observations of such cases have taught me that as a rule the failure of vision is tolerably sudden, progressing rapidly for a time, and then remaining for weeks at a stand-still. Galezowski, in speaking of alcoholic amblyopia, makes the sweeping assertion that loss of the power of distinguishing colors is characteristic of the disease. This is by no means true, for there are many cases in which there is no deterioration of this function until the process has become one of atrophy of the nerve-fibres.

One of the most conscientious and faithful observers in the field of toxic amblyopia has been Mr. Hutchinson, of London, who has published some valuable clinical observations upon tobacco-amaurosis. He considers it a most grave affection, tending steadily downward, and leading, in the majority of cases, to absolute blindness. He especially emphasizes, as an important symptom, the excessive tendency to sleep. He considers that two years usually suffice to complete the entire loss of vision, that the process ends in white atrophy, and that the abolition of the visual function is due to changes in the cerebral origin of the optic nerves. The statement that the amblyopia is always symmetrical, I cannot, however, indorse, for in many cases there is a marked difference in the visual power of the two eyes. I think we may say that cases of this form of amaurosis are characterized by loss of vascular supply to the nerve itself. The disease, of course, has a vast preponderance among adult males, and observation has not led me to believe that occupation exerted any direct influence upon its production.

A very interesting statement by Richardson, to the effect that tobacco-smoking increases at first the sensibility of the retina and prolongs the duration of after-images, I can corroborate in my own person, but apparently only under certain conditions. After long use of the eyes, as in microscopy or continuous reading, or after prolonged mental work, tobacco-smoking, in my own case, exerts no appreciable effect upon the retina, and the after-images almost immediately pass away through fatigue of the retina; but after a full meal, or when the eyes have not been used for any close work, smoking increases markedly the retinal sensibility and very sensibly prolongs the duration of the after-images. In other words, the tobacco exerts its primary stimulant effect, provided the nerve-elements have not been previously exhausted and rendered non-sensitive by work.

One objective symptom of these forms of toxic amblyopia, which I have occasionally met with, and have not seen mentioned, is a peculiar mild type of retinitis or neuro-retinitis, which is scarcely of an inflammatory character. The larger vessels of the retina, especially the veins, are surrounded by white lines of varying breadth, the tissue of the retina is more or less cloudy or œdematous, and subjectively the vision becomes worse than before. This affection sometimes remains stationary, but if treated properly never grows worse, and, as a rule, entirely disappears. The chain of symptoms, as well as the course and increase of the functional disturbance, with subsequent improvement, distinguish this from a sclerosis of of the vascular walls. These white lines sometimes spread out into the retina, but their disappearance under treatment proves that they are easily absorbed. These lines and spots are probably agglomerations of lymph-corpuscles which have arranged themselves along the walls of the blood-vessels, and are possibly "outwandered" white blood-corpuscles. This is evidently the same form of superficial retinitis which Classen reports to have seen in the course of some of the eruptive fevers, as scarlatina and measles. Of course, the functional power and future maintenance of the retinal tissue depend upon the amount of exudation from the vessels and the rapidity with which it is reabsorbed. According to Classen, the exudative process may be very circumscribed and confined to a few venous branches, instead of spreading over the whole retina, and this is the case in the form of retinitis occasionally met with in these cases. The form of amblyopia due to the toxic influence of lead upon the system is comparatively rare, and its pathology is not yet satisfactorily settled. Lead, of all the metals, perhaps, oftenest causes toxical effects, which are due to some special action exerted by the metal upon nutrition and consecutively on different parts of the nervous system. Sometimes it acts very rapidly, though more often it requires years to produce any effect upon the organ of vision. As regards the pathological anatomy of the affection, in a little more than half the cases of fatal lead-poisoning with cerebral symptoms, no appreciable lesion was found in brain or cord, while in others the brain-tissue was anæmic and the convolutions flattened. According to statistics, disturbance of vision occurs in about one-fifteenth of the cases, and in some it is the first symptom observed. It is especially characterized by its sudden onset, and sometimes by its equally sudden disappearance, in this resembling the uræmic amblyopia of chronic Bright's disease. So close is this resemblance that more than one writer has asserted the identity of saturnine eclampsia with the convulsions of chronic albuminuria. Certainly this transient form of amblyopia is not, probably, caused by any coarse pathological changes; and, inasmuch as it is a fact that lead-poisoning often causes degeneration of the kidneys, a supposition of identity is not so far out of the way.

No specific lesion has ever been found at autopsies, and why the optic nerve should become affected, while the other nerves of special sense are almost never involved, seems difficult of explanation. Those tissues in which nutrient changes are most active, receive the largest provisional supply of blood, and in this case, the blood, being loaded with a poisonous material, would impregnate them with it to a greater degree than other tissues in which the circulation is less active: hence such a highly-nourished tissue as the optic nerve would be affected comparatively early. But the fact is, that atrophy of the optic nerve is a very late manifestation of lead-poisoning, and most observers, moreover, agree in attributing to it a cerebral origin.

It is probable that many of the cases of amblyopia associated with lead-poisoning, reported by general practitioners, are due, not to an affection of the optic nerve, but to a paralysis of the ciliary muscle, thus destroying the power of accommodation of the eye. In fact so rare is the disease regarded by some authors, that Soelberg Wells says that he has met with but *one* case in which the loss of vision could be distinctly traced to lead-poisoning.

In cases of real atrophy of the optic nerve, it is sometimes difficult to say whether the atrophic process is direct and simple, or whether it is the result of a neuritis. Horner mentions that in some cases there is an inflammatory process going on in the nerve, while in others all signs of inflammation are absent. Nagel has recently reported a case of lead-amaurosis caused by double optic neuritis, ending in atrophy. Dr. Edward Meyer, of Brussels, reports two cases of lead-amaurosis, in one of which both optic disks were completely atrophied, while in the other there was double "choked-disk."

In regard to the changes in nerve-structure produced by the toxic influence of lead, Westphal reports the result of a microscopical examination of the radial nerve of a patient suffering from the disease, as follows: "The nerve was normal in appearance and volume, with no trace of fatty degeneration. Sections after hardening showed a notable decrease of the ordinary yellowish fibres, their place being occupied by reddish spaces. In the centre of these may occasionally be discerned a dark-red point, which is probably the section of an axis-cylinder. This picture resembles those of Naumann and Eichhorst, which they have demonstrated in fibres undergoing regeneration."

A few words in regard to the correspondence between the subjective symptoms and the objective manifestations. Atrophy of the optic nerve always manifests itself by diminution of the sharpness of vision, and usually by increasing lateral limitation of the visual field. But the grade and extent of this functional disturbance are not always proportionate to the pathological changes apparent on ophthalmoscopic examination; that is, the destruction of the nerve-elements in the optic papilla and retina is not always in proportion to the changes seen in the eye. Moreover, a disturbance of the visual function is not solely dependent on the nutritive state of the papilla and retina, as atrophy occurring here may be only a symptom of an identical process in the brain or spinal cord, which may destroy the conducting power of the nerve, or the activity of the central organ.

In making our clinical observations of cases of toxic amaurosis, the field of vision must be carefully examined in all directions, in order to gain a clear idea of the amount of impairment to the functions of the eye, and thus perhaps enable us to form a conclusion as to the locality and extent of the trouble.

As a matter of clinical experience, amblyopic peripherical contractions of the field of vision generally begin at the temporal or nasal sides, very rarely above or below. Concentric limitations are the most frequent.

The importance of examining carefully the field of vision in these cases cannot be emphasized too strongly, for by the results so gained we are generally enabled to distinguish between the benign and the unfavorable progressive cases of amblyopia. Von Graefe was accustomed to divide his cases of amblyopia into three groups, as follows: 1. Those in which with failing vision there was an absolutely normal visual field. 2. Cases in which the field was relatively normal, but concentrically limited in relation to the diminution of central vision. 3. Cases in which the field was abnormally and irregularly limited. This division is a very good one, and embraces all cases of this kind of amblyopia that we are likely to meet. The first division embraces the benign cases of amblyopia, which never tend to progress to an unfavorable termination, provided we see them early enough and have firm control over our patients. In these cases we rarely meet with any ophthalmoscopic sign of disease, except an hyperæmia of the optic disk and retina. The second division embraces the transition forms from benign amblyopia to amaurosis, where the cause is still acting, and in these cases there are always ophthalmoscopic evidences of the disease. Still a discoloration of the papilla is not always to be regarded as a sign of progressive degeneration any more than a normal appearance of the optic disk always excludes the possibility of disease. Experience teaches us almost daily to depend more and more on the state of the visual field, for the unfavorable forms of amblyopia soon lead to narrowing of the field, or at least to marked diminution in the acuity of peripheric vision. In this second division of Von Graefe's, I am strongly inclined to place all cases of toxic amblyopia, from whatever cause, though cases are occasionally seen without any limitation of the field at all. It is unnecessary to describe the pathological changes occurring in the optic nerve and retina in cases of toxic amaurosis. The first signs are an hyperæmic condition of the vessels of the disk, which, in rare cases, leads to neuritis, pure and simple. This hyperæmia is followed after a varying time by progressive degeneration and atrophy of the nerve-fibres, characterized by a gradually-increasing anæmia, until we reach the stage of actual atrophy with its dead-white optic papilla. Among the various forms of amblyopia, it of course becomes important to decide upon a prognosis, and I believe it can be said with truth and exactness that most of the cases of toxic amblyopia are curable, or, at least, can be stopped in their progress, provided we can see the patients early enough, and are able to carry out our treatment exactly. Of course, cases of so-called benign amblyopia pass into progressive atrophy if the exciting cause is persisted in; and, moreover, there are some cases of toxic trouble which, without differing from others in their ophthalmoscopic appearances, tend from the beginning to atrophy of the nerve-fibres. As a great aid to prognosis, the condition of the power for recognizing colors, I think, cannot be too highly valued, though here authorities differ widely. Leber does not regard color-blindness as a bad sign, for he thinks it is met with in the benign cases. Schœn holds that even when vision is reduced to counting fingers at seven or eight feet, if the color-sense is normal in degree and extent, a good prognosis may be given. Leber again holds that cases in which color-blindness has appeared early may recover entirely, and in this I am inclined to agree with him. But, if the partial color-blindness has lasted for some time and is slowly increasing, the case will surely end in atrophy.

To return once more to the field of vision, we have the authority of Von Graefe for the statement that simple toxic amblyopia never occasions limitation of the field unless it has already led to atrophy of the optic nerve—a statement which, from the very nature of things, cannot be proved. Leber, Erismann, and Hirschler, hold the same view as regards the state of the field in these cases, both in respect of concentric limitations and of interruptions or scotomata. Förster, on the other hand, believes that there is always a scotoma present in these cases. Schœn states that he has never been able to detect a scotoma in cases of toxic amblyopia by the ordinary means of examination, but, by employing the method of Förster, he has almost always found them. Förster uses small red objects, like bits of card-board, four millimetres square, on a black background. Snellen has employed this method and agrees with Förster that scotomata are almost never absent. These color-scotomata should always be carefully looked for, and by choosing a good day, when the light is bright, they will very often, perhaps in the majority of cases, be found. They are of importance in this respect, that, where they exist, pathological changes in the optic disks will almost certainly be seen with the ophthalmoscope. The change consists in a pale, anæmic condition of the papilla, generally limited to the outer portion, though it may extend over the whole disk. This state of affairs is generally amenable to treatment, for the process is a recent one; but, if no treatment be undertaken in this stage, the anæmia advances to gradual atrophy of the nerve-fibres, and then the most we can do is to arrest the process at this point, without any hope of improving the vision, and even this is not always possible.

We do not always find a direct connection between the limitation of the visual field and the amount of color-blindness. In some cases the concentric limitation is marked, while there is no color-scotoma demonstrable, although, of course, at the periphery the colors are not recognized. In other cases there is no limitation to the field, while there may be either a central color-scotoma or else more or less color-blindness at the periphery. Though the peripherical limitation generally commences on the temporal or nasal side, yet it soon spreads all over the periphery, and never assumes the irregular, angular, or sector-like shape, which is met with so commonly as a prodroma in glaucoma, or that shape which so often accompanies detachment of the retina.

A few words now in regard to the treatment of these cases. Unless you can be absolutely sure of being obeyed in regard to the immediate and absolute cessation of smoking and drinking, no treatment will be of much avail. This having been agreed to, it will be found that many of the cases will recover without any further treatment. To hasten the process, it is, perhaps, as well to give potass. bromid. gr. x–xv three times a day, and with this drug most satisfactory results will sometimes be obtained. A trial of a week or ten days will decide whether the plan will prove successful, and, if no improvement be observed within that time, we must resort either to the hypodermic injection of strychnia in gradually-increasing doses, or to galvanism, or both. Perhaps, in the long-run, the best results will be gained from the strychnia, though many cases show no improvement under this plan of treatment, and these are almost always progressive and tend naturally from the beginning to atrophy. It is best to commence with a moderate dose of strychnia, say gr. $\frac{1}{40}$, and increase it by a small amount every second or third day, and in this way surprisingly large doses may be taken with impunity. I have frequently given gr. $\frac{1}{2}$ and even gr. $\frac{3}{4}$ at a dose, and this for a number of days in succession. The majority of cases will commence to show some improvement during the first week, and very often this occurs first in the field of vision. The field widens, it may be in one sector, it may be symmetrically on all sides, and this without any improvement of central vision. Again, sometimes the improvement is first noticed in the restoration of the sense of color to the normal standard. If, at the end of three or four weeks, we see no change for the better, we should at once resort to galvanism as the last and only means for staying the process of atrophy going on in the nerve-fibres, in which we sometimes succeed, and even gain some improvement in vision. But oftener the atrophy goes on in spite of all our treatment, and in this unfortunately very large class of cases we must confess our inability even to stop the progress of the disease, much less to bring about any improvement.

Here we have to deal with a distinct atrophy. Bader was the first in England to suggest the use of galvanism in atrophy of the optic nerves, but in his practice it proved unsuccessful.

Onimus, of Paris, has recorded some observations upon cases of atrophy treated by electricity, in the *Recueil d'Ophthalmologie*, in which the results were good. He used only the constant current, and applied the rheophores of a weak battery over the upper part of the neck, one on each side, so as to act only on the superior cervical ganglion, and thus influence the intraocular circulation. This influence, he thinks, is proved by the occurrence of phosphenes at the closing and opening of the circuit, and also by a momentary contraction of the retinal vessels, followed by dilatation. With regard to results, Onimus distinguishes between cases of atrophy of cerebral or spinal origin and those in which it is primary and uncomplicated. He records five successes in thirty cases of the former class, the current being applied every second day for six or seven weeks. In cases of simple atrophy he gained much better results.

I have found the occurrence of phosphenes a very frequent result of the passage of the electric current, though sometimes they are not produced; but I cannot say as much for the momentary contraction and dilatation of the retinal vessels claimed by Onimus. I have watched the retinal circulation long and carefully in the eyes of patients, while the battery was in action, and only very rarely have I been positive of any change in the calibre of these vessels during, preceding, or following the passage of the current.

In treating these cases, the current should be applied daily for ten or fifteen minutes, commencing with a small number of cells, enough to make the current perceptible to the patient, and gradually increasing the number of elements as the patient is able to bear them. In a few cases among private patients, I have used a continuous current from a weak battery passed round the head by a band, for several hours together, and with beneficial results. But we should never lose sight of the fact that when the case has advanced to atrophy, before coming into our hands, we can do next to nothing, and should beware of holding out a favorable prognosis to the patient or his friends.

Art. III.—*A New Instrument to simplify and facilitate the Operation for Vesico-Vaginal Fistula.*[1] By William A. Byrd, M. D., Quincy, Ill.

I was called upon by Dr. Addison Niles to assist him in an operation for vesico-vaginal fistula, on May 12, 1874. The opening in the bladder was very large, with the edges deeply congested and everted. The wall of the bladder opposite the fistula was very much swollen and red, protruding through the opening, causing considerable trouble to distinguish it, as it pressed through the opening, from the tissues surrounding, which were identical in appearance. This trouble caused a great deal of delay in the operation, and I immediately undertook to devise means to remedy the inconvenience in any future operations. In two or three weeks after the operation, after various experiments, I concluded that I had solved the problem, and wrote to my friend Dr. M. Rooney, who had been present at the operation, but was then in Brooklyn, describing the manner in which the operation should be modified, that he might lay it before some of our brethren for trial, whose opportunities for frequent operations of this kind were greater than we have here. He replied that he had spoken to several gentlemen about it, and they appeared favorably impressed with the idea, and promised to try the plan at their next operation of the kind, but I have heard no more about it from that quarter. My idea from the first was, that, if there could be some means of ballooning the bladder—something like Trendelenburg's modification of the operation of tracheotomy—the difficulty would be overcome, but there was no rubber-factory near, and an instrument must be made out of such material as could be gotten within our city. While thinking of the matter I passed a toy-shop where there were a lot of children's toy India-rubber balloons exposed for sale. Upon examining them I decided that I had found what I needed, so I purchased several that were not inflated. Taking a piece of hard rubber tubing three-sixteenths of an inch in diameter and three-fourths of an inch in length, a piece of elastic tubing of the same diameter, seven inches in length, I had one end pressed over the hard tube, and over both of these the neck of the balloon was placed and tied. Now I thought I had a complete instrument; but, upon inflation, the rubber was found to be too thin to bear the pressure necessary, which was remedied by slipping another balloon over the first one. This is best done by dilating the neck of the second balloon with the blades of a pair of dressing or polypus forceps, and slipping the first one, well rolled up, into it between the blades of the forceps. The balloon as thus made has double walls, is not more than one-fourth or three-eighths of an inch in diameter in a collapsed state, and can readily be distended with air or water to a diameter of from five to six inches.

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[1] Extract from the President's Annual Address to the Adams County (Ill.) Medical Society, May 10, 1875.

A chance to try this instrument did not occur until November 9, 1874, when Dr. Niles desired my assistance in operating again on the same patient, the former operation having been only a partial success. The patient was placed in the position recommended by Sims, and the speculum (one very ingeniously contrived by Dr. Niles for cases of vesico-vaginal fistula; an instrument capable of wide and varied application, which I hope the doctor's son, the doctor being dead, will give to the profession) introduced; now a small copper wire with a knob on the end of it was passed into the bladder through the urethra, and out through the fistula into the vagina, the end then being bent back so as to emerge from the vulva. The knob on the end of the wire was then slipped into the end of the flexible tube attached to the balloon, and the wire made to retrace its course, which brought the end of the tube out at the meatus urinarius and the balloon safely into the bladder. The wire was then detached and the nozzle of a syringe inserted in the tube, and the balloon slowly filled with water to such an extent as to dilate the bladder well, and to define the fistula by making the walls tense and preventing the opposite wall from interfering by falling through or into the fistula. The edges of the fistula were now pared, which paring, on account of the convexity given them by the dilated balloon, was much better and more quickly done than at the former operation; the stitches were then made with iron wire, which for the same reason was much more easily used, the water was then let out of the balloon, and the sutures twisted down, after which the balloon was withdrawn from the bladder by making slight traction on the India-rubber tube. This operation demonstrated pretty conclusively that ballooning was a great advance on any of the previous plans for operating. But one operation does not make out a case for superiority of a given instrument, any more than one swallow makes a summer.

Dr. H. W. Kendall invited me to assist him in an operation for vesico-vaginal fistula, June 23, 1875. I may state that Dr. Kendall uses Smith's speculum in these operations, and has his patient upon the back, as in ordinary vaginal examinations with a speculum. This was the third operation of the kind I assisted him in, and I find his method very good. In this last operation he commenced paring the edges of the fistula without using the balloon, which led me to think he had not much faith in its advantages; but, finding the operation of paring getting tedious and unsatisfactory, he requested me to insert the balloon, and see how it would act. After inserting the balloon and dilating with cold water as in the former operation, the fistula was carried back by the pressure of the balloon against the pubis, and apparently our aim was defeated; but by placing the patient in Simon's position (*see* Thomas, fourth edition, page 201), which was done by simply flexing the thighs well upon the body and raising the nates slightly, this manœuvre brought the fistula beautifully into view, with the edges standing out prominently from the balloon, and the vascular back wall replaced by the almost black rubber walls. The paring was then quickly and nicely done and the sutures inserted, and the balloon withdrawn and the sutures twisted down; the operation was done in about half the time ordinarily occupied. All the physicians present expressed in unqualified terms their good opinion of the service rendered by the instrument, and none more so than Dr. Kendall, who proposes to use it in all his future operations of that character.

The advantages possessed by this instrument are: 1. The material is to be had in almost any town, and will not cost above forty or fifty cents, and any one with a little ingenuity can make one in from five to ten minutes. 2. It is easily dilated with any ordinary syringe, when it defines the fistula perfectly, throwing the walls of the fistula prominently out from the convex surface of the balloon, which renders the paring more speedy, certain, and easy. 3. It prevents the posterior wall of the bladder from interfering with the operation. 4. It prevents blood flowing into the bladder, and there clotting and giving trouble. 5. It allows the sutures to be more rapidly inserted, and more easily placed at proper distances from each other. For a like purpose a good housewife places a ball in a stocking she is going to darn. 6. By pressure and the temperature of the distending fluid, it represses hæmorrhage. 7. When undistended it occupies a very small space. 8. At the suggestion of my friend Dr. Landon, of Burton, Ill., it can readily be applied as a tampon in cases of metrorrhagia, possessing the advantage of being smaller, cheaper, and more readily obtained, than Baun's colpeurynter.

This instrument is offered to the profession with the full assurance that it will do all that has been claimed for it. I have tried to describe it so that any one can make it, but, if my explanation should not be understood, I will send one to any instrument-maker who may be designated, that he may be able to make them for any one that applies.

Art. IV.—*An Improved Method of obtaining Support for Fractured Bones of the Extremities, with Flannel, Plaster of Paris, and Shellac.* By G. Wackerhagen, M. D., Surgeon to the Southern Dispensary of Brooklyn.

In the treatment of fractures of the long bones the surgeon is required to exercise great care and diligence, for the reason that patients generally expect to be dismissed with the limb perfect in contour, and as useful as before the injury.

Every possible effort should be made to comply with these demands; therefore, it is essential that he be prepared to employ material which will supply the following requisites, viz.:

It should be light, easily and quickly applied and removed. It should readily adapt itself to the irregularities of the limb, and become sufficiently firm to retain the fractured bones in place as soon as extension and counter-extension are discontinued. It should not confine perspiration, nor become unserviceable from increased temperature or moisture.

In order to allay pain, and to facilitate a more complete adjustment of the fracture, I am of the opinion that anæsthetics should be more generally administered, thus preventing deformity which sometimes results because of the difficulty in overcoming spasmodic action of the muscles.

During the past ten months I have practically tested nearly all the materials that have been employed for dressing fractures, and have found them more or less defective, excepting plaster of Paris, for the application of which I propose the following improved method:

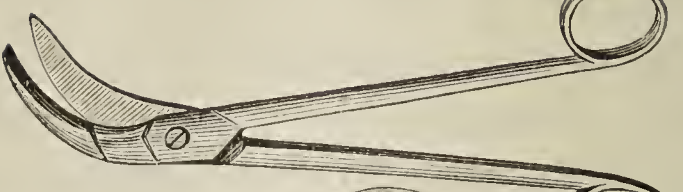
After replacing the fragments as accurately as possible (extension being maintained by assistants), the limb is smoothly bandaged with cotton-wadding, prepared in the form of an ordinary roller; a flannel bandage spread with dry plaster of Paris, and rolled, is now soaked in warm water (to which I generally add about two fluid-ounces of saturated solution of sulphate of potassium), and applied to the limb, over the wadding, by circular and reversed turns. One layer of the flannel applied in this way is amply sufficient for support.

When we wish to inspect the point of fracture, the dressing, which is only about an eighth of an inch thick, is easily cut through by a pair of curved scissors (Fig. 1), manufactured for me by Messrs. Tiemann & Co.

If it is desired to employ lateral splints, the dressing should be cut in the median line of the anterior and posterior surfaces. If antero-posterior support is preferred, it should be cut through the lateral surfaces. The splints should now be varnished on their inner and outer surfaces with shellac, or this preparation may be applied to the outer surface before removal.

The shellac seems to permeate the dressing sufficiently to increase the strength of the splint, and at the same time renders it slightly flexible instead of brittle, as is the case when plaster of Paris is used alone.

Fig. 1.



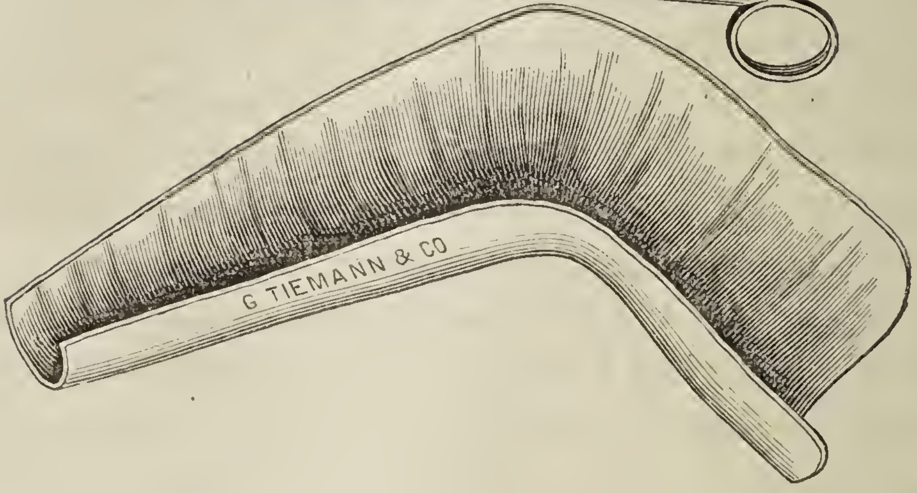


Fig. 2.

The lateral elbow-splint (Fig. 2) weighs only four ounces. The materials necessary for use by this method can be procured in packages from Messrs. Tiemann & Co., of New York.

Clinical Records from Private and Hospital Practice.

I.—*London Clinics. St. Thomas's Hospital.* Reported by Alexander Hamilton, A. M., M. D.

Case I. *Dry Chronic Arthritis. Service of* Mr. Croft.—A married woman, aged twenty-four, began to limp from eighteen months to two years ago. For the last twenty-three weeks she has been confined to the bed, during which time only the hip has been swollen. The limb now has one and a half inch shortening; there are marked eversion, considerable mobility, not much pain. The swelling is hard, giving the sensation of being osseous. She had considerable pain in the knee during the first year. Now, "white swelling" is before puberty; and in all my cases, over sixty, this was true. Again, the swelling of "white swelling," or strumous arthritis, is gelatinous, which is not the case here. Again, in ninety-nine per cent. of cases of hip-joint disease there is *inversion*, with absence of both adduction and abduction. The pain she has had has been worse at night. In strumous arthritis there is commonly a family history of some one being delicate and the family being consumptive. This is not the case here. Her present condition, again, does not tally with strumous arthritis. Then what is the disease? Not ordinary dislocation, because there is no history of injury, there is no inversion; and, besides, we should then feel the head of the bone out of place. It is a case of what has been called chronic rheumatic arthritis, nodose rheumatic arthritis, senile hip-disease, dry arthritis, and a variety of names. It may occur in the small joints, and may occur in the hip; and when in the hip it is characterized by all the signs and symptoms known to exist in this case, by a number of bony growths or osteophytes, and, by a number of special changes inside and outside the joint. By manipulation we know that there are a number of new growths about the joint. We can feel such growths; but where or in what tissues cannot be said exactly. We know that there is dislocation. What changes must have led to this? The cartilage undergoes degenerative changes, which lead to disappearance of cartilage from the central parts of the joint. The acetabulum becomes shallow. The cartilage disappears from the head of the femur, and it becomes flat. The head becomes displaced upward and outward. Atrophic change goes on in the head and neck of the bone, which sometimes leads to fracture. There was such a case in Leopold ward—a dry arthritis with fracture. In this case it may have occurred, the head being left in the acetabulum and the shaft being drawn past it upward. I call this *dry* because there are two sorts. We had one in Leopold ward with hydrops articuli, and in which there were osteophytes. There is no hydrops in this case. Her history is much like the history in all such cases. In a total of say thirty cases I find their histories much alike. Still, one will have the history of an injury, another not; one's father will have had rheumatism, another not, etc. This woman has no history of rheumatism. Her urine is clear, mostly, but cloudy at times, as every one's will be. There is so often no history of rheumatism, that it is better to call it dry chronic arthritis. It occurs in young people, and hence "senile" is not a good term.

Indications for *treatment:* a dislocation, osteophytes, and little pain. What can be done? When there is hydrops articuli, we may use strapping, blistering, and iodine. By these means your patient may get rid of the fluid, but it will be likely to return. It isn't rheumatic, and we can't attack it from the rheumatic side by turpentine, alkalies, and iodide of potassium. To attempt to reduce the dislocation and restore the length of the limb, would be to begin an endless task, because it cannot be retained in place. Nothing can be done to break up the osteophytes. Can we fix the joint and hope to obtain bony anchylosis? Sometimes it has been done in the knee, but this has been in the early stages, before the cartilages had disappeared from the joint as they have here. Nothing is to be gained by keeping the patient at rest, for it impairs the general health. The best thing is to support the joint and enable the patient to get about. I would like to excise the joint, cutting off the top of the femur, and allow the upper extremity of the remaining shaft to bury itself in the fibrous tissues around the joint, and at the same operation to remove the new growth and diseased joint-surfaces. But I have no precedent. Mr. Grant has recently operated successfully for rheumatic arthritis, i. e., for this disease. Mr. Adams has done so in the knee. Why should it not be successful in the hip? Otherwise she must wear some sort of apparatus which will allow her to go about, but not to gain a living. Hence it is a sad case of a disease which demands the attention of the profession. We have no good description of the disease and its pathology in English as yet.

CASE II. *Aortic Aneurism. Service of* MR. SIMON.—A man, aged thirty-eight, was admitted for what was believed to be elephantiasis of the left leg. Its size had been increasing for eight or nine months previously, having begun after bathing. There were enlarged veins over the upper part of the thigh and lower part of the abdomen, from the size of crow-quills to those of writing size. The circumference of the left thigh was over thirty-one inches, that of the right was under twenty. The left was rather too tense to pit. The toes were blue. The question was raised, Was this the effect of a clot caused by *cold* bathing? Although admitted for elephantiasis, it was soon discovered that he had aneurism, at first thought to be of the right iliac, but later it was believed to be in the middle line, about the bifurcation of the aorta. The pressure of this on the left common iliac veins was believed to explain the condition. There was, too, some evidence of heart-disease, at first thought to be both aortic obstructive and regurgitant; but, on further examination, any idea of regurgitation was given up, and obstruction only believed to exist.

Treatment.—Rest for the leg might be of some advantage. Pressure through the abdominal wall has been successful in a few cases, and this it was determined to try. Accordingly, an instrument was made consisting of a thick, stout, abdominal, well-padded band, a foot or so broad, which supported an arm bearing an oval button an inch and a half long by an inch wide, the button being intended to exert the pressure. Pressure was begun at 10 A. M. Wednesday, desisted from because the instrument did not work well, but reapplied at 12 M. and continued fifteen hours. The pain caused by the pressure was almost intolerable. Gave morphia rather than an anæsthetic, in half-grain dose at first, and then repeated *p. r. n.*, watching the pupil, etc. In the fifteen hours he took three or four grains, in half-grain doses, each subcutaneously. This pressure must have forced the heart to greatly-increased action because of the obstructive disease, it also making backwater upon the lungs. It would squeeze the intestines as well. It would very much diminish the supply of blood to the lower extremities. However, during the fifteen hours nothing occurred to make us particularly anxious. At noon, soon after the reapplication, perspiration and a flushed face were noticed, but at 2.30 P. M. he was lying quiet, with respirations accelerated to 22 per minute. At 3.15 complains of little pain, but coldness of extremities. At 4.15, the passage of blood is not completely controlled, no impulse, further tightening would be painful; screwed another turn. 5.30, hiccoughing for fifteen minutes, during which there was slight pulsation. Position of tourniquet changed, after which he dozed, and the compression was effectual. Passed urine at 5.45. At 6.40 the left leg was less tense. At 11.10 passed five ounces of urine; no albumen, offensive. 11.25, pain, screw loosened but without pulsation, copious perspiration. 1.15 A. M., easy. 3 A. M., restless, pressure removed, slight pulsation was noticed, and the point of application of the tourniquet was red and tender. At 10 A. M. the pulsation was decidedly diminished, and the strong thrill previously felt almost imperceptible. On Thursday night he vomited some black fluid supposed to be hæmorrhage from the mucous membrane of the stomach. The man was in an exceedingly depressed condition, but this was largely accounted for by the morphia. The circumference of the limb had diminished several inches. On Friday he was seen by Dr. Murchison; pulse, 120; temperature, 98.4°; slight pulsation and some hiccough. On Saturday he was depressed, no vomiting, occasional hiccough; stimulants ordered. On Sunday vomiting of black fluid began, slightly better than yesterday; vomited a good deal in the afternoon, about three pints. On Monday there was some distention of the abdomen, but there had been free passage from the bowels. Later he seemed much better. But the vomiting recurred on Monday afternoon, when he began to wander. On Tuesday he was evidently sinking. The temperature had gone up during the last twenty-four hours from 98° to 100½° or 101°. He died about noon on Tuesday.

From the *post mortem* it was quite clear that the treatment was the cause of death. Some discoloration of the intestines was noticed. There were some adhesions between the intestinal surfaces and the abdominal wall. There was nothing that could be called active peritonitis. The intestines somewhat glued together toward the flanks. Soon we came to a pearly spot, and then a second such, in the intestines, the first about the size of a sixpence, without any lesion of peritonæum over it. There was deep congestion of the mucous membrane of the stomach, which now showed that his hæmatemesis had a more important significance than was attached to it at the time. The first three inches of the duodenum showed a slight punctiform injection. Farther on, foot after foot, there was an ochre-colored condition together with the congested condition of the intestine. In the ileum there was a washed-leather look, and an unmistakable slough. The mesenteric artery had been obliterated by the pressure of the screw, and death had occurred throughout the parts to which the mesenteric artery was distributed. The pearly spots were opposite the spots through which the necrosis had extended up to the serous membrane. There was no thickening around the part of the aorta on which we pressed. Why the mesenteric artery should thus have suffered, or why the obliteration of the mesenteric should have affected the mucous membrane as it did, is not plain, considering the liberal collateral circulation.

I am not quite clear how we should apply it in future. In other cases pressure has been made for twelve and a half hours, and the difference between twelve and fifteen hours is not very important. Perhaps the lesson of the case is, that the pressure should be intermitted, making six-hour periods, say. Was there unnecessary violence? I think not. There may have been sometimes moments in which the pressure was violent. By the apparatus it could not be told how much pressure was being exerted. A better result might have been got with more accurately-graded pressure, and *perhaps* with intermittent pressure. After the first period of six hours, however, there would be reaction in the skin which might prevent replacing it.

The sac had a lining of clot, but not a massive clot. There had not been enough done to cure it. However, cure does not always follow immediately. We may have a clot which forms a nucleus for further clot formation. Pulsation may be stopped for a time after removing pressure, to begin again, but later to stop for good. It would seem that the clot first formed is sufficient to obstruct the circulation, but contracts. Still with fifteen hours' pressure there seemed insufficient clot-formation to effect a cure. Dr. Morris, of Newcastle, was successful after seven hours' pressure divided into periods of two and five. In his case pulsation was felt after removal, but some hours later the tumor became quite pulseless. Another case has succeeded with ten and a half hours' pressure. A case was fatal in Guy's Hospital after twelve hours. Dr. Greenhalgh's case was after eight hours; and still another successful case is reported after twelve hours' pressure.

Case III. *Gallstone. Service of* Dr. Murchison.—Harriet T., aged forty-six, has been so deeply jaundiced for two years as to cause the opinion that she was colored. Her face is the hue of the North American Indian. The conjunctivæ and parts of the body covered by clothing are of a deep yellow. She is at times less colored than now, but for the last three months has been worse than before. She was in good health until she was attacked suddenly with pain over the stomach, but more to the right side, numbness, and vomiting often five or six times a day. The matters vomited were like bile at first. This went on for three or four weeks, she having become yellow three days after these symptoms began. The violent pain was accompanied each time with vomiting. These attacks have continued to come off and on, the last having occurred three days before admission. She has lost flesh and is moderately emaciated. The skin was very itchy formerly, but is not much so now. The liver is enlarged, extending upward to nearly the nipple, and as low as the umbilicus; this is when she is recumbent; it measures eight inches parallel to the median line, of which three and a half inches is below the ribs; its surface is smooth and not tender, except slightly so in the epigastrium. The abdomen around and below the umbilicus is enlarged, but not from ascites. This apparent enlargement is probably from an enlarged spleen. In the left hypochondrium there is also a swelling which extends four and a half inches below the margin of the ribs, which is the apparently enlarged spleen. There is slight pitting of both feet and lower part of the legs, but absolutely no ascites. She has had chills about twice a week, during which she loses appetite. The appetite is not bad, in general, but varies. With these chills she has some pain, enough to awaken her. The tongue is clean. The bowels are sometimes costive, sometimes relaxed, the motions always pale. Urine always very dark from the first; no albumen. Sleeps badly even when she has no pain; once vomited a teacupful of blood; eructates much gas, which often has a bad taste;

the breathing is sometimes short, seldom any cough, no expectoration; heart-sounds normal; family history negative.

Jaundice attended by severe paroxysms of pain is almost invariably the result of two causes: 1. Gallstones. 2. Malignant deposit in or about the liver. If there be obstruction of gallstone, the function of the liver ceases, no bile aids digestion, and hence the emaciation as in this case. If this case were of malignant character, it would have terminated before this. It began like the passage of a gallstone, the history being almost typical of biliary colic. The duration is not incompatible with gallstone. The gallstone must be very large, or the bile-duct very small. Are not enlarged liver and enlarged spleen incompatible? The enlargement of the liver is doubtful, for, although the region of dullness is increased, yet the chest is drawn in rather than round, so that it may be an elongated liver. The spleen is smooth and not tender, and hence we may exclude malignant disease of spleen. The portal circulation is not obstructed, as she has no ascites. We may have gallstone and then something else supervening. The diagnosis of gallstone does not, however, explain the enlarged spleen.

As to *prognosis:* a favorable feature is the persistence of pain. There is nothing worse than for a person with gallstone to go many months without pain.

As to *treatment:* we might give emetics which, acting mechanically, would help the gallstone to pass on. But they would weaken the patient, and, as movements come on spontaneously, will not be resorted to. Turpentine, alkalies, and ether, have been thought of to dissolve the gallstone, but there is no *good* evidence from clinical experience that they are dissolved. Alkalies would help to prevent the formation of fresh stones. We must keep up digestion and make up for the lack of bile. For this we may give bile in pills. We should also correct the flatulence, which is troublesome. Let her take two pills containing six grains of ox-gall twice a day an hour after meals. For the flatulence let her take one drop of creosote made into a pill, after each meal. Give her meat, bread, milk, and eggs.

II.—*A Case of Intussusception.* By F. M. Thomas, M. D., Samantha, Ohio.

I have been induced to give the history of this case, not because of the success of the treatment employed, nor yet on account of its being in any particular an extraordinary case, but because it shows to my mind the uniformity of the symptoms present in all well-marked and undoubted cases of intussusception.

Many cases of intestinal lesion are to the medical attendant of doubtful origin, and for want of a better name he calls it invagination of the intestinal canal. This is very frequently so in cases arising in young children and where the symptoms are all objective. And, if we should give much heed to many of the published cases of intussusception, so-called cases presenting widely different symptoms, we should be undecided as to what the true clinical history of the disease is.

On the evening of the 28th of May, 1875, I was called to see an infant aged four months. He had been a healthy and hearty child from birth, and had nursed at the breast. His bowels had been somewhat constipated, but to an extent insufficient to interfere with his health. His mother informed me that he had spent most of the forenoon in his crib, and that she had noticed nothing unusual with him except an uncommonly large evacuation of the bowels about noon. She said the discharge was natural in appearance and unattended with pain. He was taken suddenly, about three o'clock p. m., with colicky pains, which made him scream desperately, and in a few minutes they were accompanied by nausea and vomiting. The mother supposed the child had colic, and gave it a large dose of castor-oil, hot teas, etc.

I saw the patient first some four hours after he was taken sick. At this time he was suffering intensely at intervals of from a half to three-quarters of an hour. When these paroxysms would come on, the patient would strain violently, but could pass nothing whatever, except a little blood, which would in an hour or two stain through two thicknesses of his cloth. I at once suspected it to be a case of intussusception, and ordered an enema of tepid soap-and-water, to be repeated every two or three hours until a fecal discharge was obtained.

Fomentations were applied to the abdomen, where a distinct but slight tumor could be felt. This tumor was situated in the right iliac region, near the ileo-cæcal valve. Tr. opii camph. was administered freely to quiet the patient. During the time between the paroxysms of pain, the little patient presented a pale and prostrated appearance. The surface of the body was cool and clammy, and he seemed to be at no time entirely free from pain.

On my return next morning I was informed that no passage had been produced, and that it had been impossible to get the enemata to remain for even a moment. I then attempted to administer an enema of soap-and-water, but it was immediately rejected, bringing away nothing but a little bloody matter. No obstruction could be felt with the finger in the anus, and during this day and the next I made repeated attempts to introduce an enema of tepid water, by elevating the hips and compressing the nates, but in each instance the fluid came away nearly as fast as it was injected. These efforts were continued at intervals of three or four hours until the patient died, which occurred on the fifth day from attack.

Now, these symptoms, viz., sudden and violent attack, nausea, and vomiting, discharge of blood from the bowels, the presence of a tumor in the abdominal region, and obstinate constipation, are present in nearly every case of intussusception. The passage of blood *per anum* should be carefully considered. It could hardly be produced, as we see it in these cases, from any other cause. At the point of obstruction, the mesenteric vessels become stagnated, causing an effusion of blood from the mucous surface of the bowel into its canal. The fact that the history of a large majority of these cases shows that the patients had large evacuations from the bowels just previous to the attack, should receive more attention than heretofore. Physic should be withheld in cases presenting these symptoms, for such a course of treatment only adds to the suffering of the patient. The prognosis is extremely unfavorable, and the best that can be done offers but a faint hope of success. If the injection of liquids and air does not succeed in removing the obstruction, there is no hope but the poor one that in time the invaginated portion may slough away, and thereby restore the healthy action of the bowels.

Notes of Hospital Practice.

BELLEVUE HOSPITAL, NEW YORK.

Protrusion of the Intestines through the Abdominal Cavity; Recovery.—The patient had formerly an abscess in the median line, which healed and left a cicatrix. Shortly before entering hospital he was struck with a blunt instrument over the site of the cicatrix. This was sufficient to break the adhesion and cicatricial tissue, and form a wound an inch and a half in extent, which opened into the abdominal cavity; from this opening there projected three or four inches of intestine of a gangrenous appearance. Although the gut had only been exposed for six hours, Dr. R. G. Glass extended the wound an inch, and was then able to return the intestine to the abdomen. After this operation the patient did well, and in two weeks had thoroughly recovered.

Anchylosis of Elbow-Joint benefited by an Injury.—Many years ago the patient sustained a compound fracture of the radius and ulna, which resulted in anchylosis of the elbow-joint. Unfortunately, the arm was kept in a straight position while a cure was being established, and as a result the extremity was for many purposes relatively useless. Three weeks ago, while on board a vessel, he fell into the hold and sustained a compound fracture of the radius and ulna near the elbow-joint. It was decided to try and amend the former bad result by resecting the elbow-joint and endeavoring to keep up passive motion. This was done, and at the present time the case promises a very satisfactory result.

Stab-Wound causing Paraplegia.—On the 18th of July a negro, while engaged in a fight, was seized by his adversary so that the neck of the negro was under the arm of the other. While in this position the negro was stabbed, and on entering hospital the wound was found to be half an inch to the right of the tenth dorsal vertebra and extending from above downward. After the patient received the injury, he dropped powerless to the ground, and when examined in hospital was found to be paraplegic. There was also retention of urine and fæces, together with obstinate priapism. After two days the priapism disappeared, and the paraplegia slightly improved. On close examination there was found to be partial anæsthesia on both sides, but greatest on the right; and partial paralysis of motion on both sides, but greatest on the left. On August 10th he had gradually improved, but was unable to move in bed. Considerable interest attaches to the nature of the wound that produced such a complication of nervous symptoms. The most satisfactory hypothesis is, that the knife entered the canal diagonally, passing forward from right to left, and injuring the right posterior and left anterior columns of the cord.

Paraplegia, the Result of a Fall.—A man, while engaged in working, fell and injured his back. On admission to hospital there was complete paraplegia, with retention of urine and fæces. After two days the paraplegia improved considerably, but still the patient suffered from retention. On the second day the urine was found to contain pus, and be of an alkaline reaction. In a few days incontinence developed, and the patient suffered greatly from scalding of the scrotum and thighs. The meatus became so excoriated as to present the appearance of a chancroid.

The treatment consisted in passing a catheter three times a day and drawing off his urine; morning and evening the bladder was washed out. The injury was received on the 16th of July, and on the 9th of August the patient had so far rallied as to move his leg slightly. The urine changed in character, and on that day was acid for the first time. The medical treatment, both of the present case and the case recorded above, was the internal administration of one thirty-second part of a grain of strychnia three times a day.

Amputation at Shoulder-Joint.—A boy had his arm injured by machinery so extensively that it was considered necessary to amputate it. The ordinary amputation at the shoulder-joint was done, and the patient rallied without any untoward symptoms.

MOUNT SINAI HOSPITAL.

Hot Packing in Acute Rheumatism.—A new treatment has been adopted in this hospital in the treatment of acute articular rheumatism, and apparently with marked benefit. It consists in packing the patient with blankets wrung out of hot water, and changed as often as their temperature falls. In one case, where the disease had invaded every joint, the patient was relieved in eight hours. The rheumatism shows a tendency to recur, and when it does the packing is practised as at first. Local packings are also used with benefit. The results obtained are fully equal to those obtained from cold packings and the use of ice, and have the advantage of not shocking the feelings of the patient's friends.

Abscess of the Brain; Otorrhœa.—This patient was a healthy young woman, who gave a history of having had otorrhœa for ten years. Six weeks before her death obstinate headache set in, and continued till she entered hospital. On admission the patient was conscious, but complained of severe pain in the side of the head, localized at a point posterior to the ear. Two or three days after entering she died. At the autopsy an extensive abscess was found in the middle lobe of the brain, extending down to the petrous portion of the temporal bone. In the vicinity of the abscess there were evidences of meningitis, apparently not recent.

When the case was first seen, it was supposed that there might be inflammation of the mastoid cells, and in this manner the acute superficial pain be accounted for, but before the diagnosis could be decided upon the patient died.

ROOSEVELT HOSPITAL.

Empyema; Death from Dysentery.—The main point of interest in the above case consisted in the fact that a cure of the empyema was nearly completely established, when a fatal attack of dysentery supervened. The history was that the patient had contracted a pleurisy a year and a half ago. He entered hospital last December, when he was aspirated and

144 ounces of pus removed. After the aspiration the cavity of the chest was regularly washed out, and gradually the amount of pus diminished till the day of his death, when only one ounce was obtained. His general health was so far improved, previously to his being taken ill with dysentery, that he was enabled to walk one or two miles with but little fatigue. At the autopsy, the pleura was much thickened, and on its surface there was sufficient pus to render it moist.

The attack of dysentery was induced by leaving the hospital and exposing himself to cold and irregularities of diet. He bore up under it for seventeen days, but at the end of that time died. The colon was found to be ulcerated through the whole of its extent.

Lumbo-Colotomy.—The patient had what was supposed to be dysentery for a period of about six months. Three months ago the discharges became bloody, and were attended with great pain after each passage. On examining the rectum there was found to be malignant disease. Dr. Erskine Mason performed lumbo-colotomy in the usual manner, and, after the patient recovered from the operation, no pain was complained of.

ST. FRANCIS'S HOSPITAL.

Suspected Cancer of the Stomach treated by Milk-Diet; Complete Relief.—The patient was a woman aged forty, who suffered for the past two years with acid eructations, accompanied with nausea and a sensation of uneasiness at the epigastrium. Six months after this she found that vomiting appeared after eating, and occasionally there were evidences of blood. As the case progressed the pain in the epigastrium became of a more severe character, and was very much increased by pressure. The patient began to sink, losing both flesh and strength, regardless of treatment. It was decided to try the benefit of a milk-diet exclusively, and for this purpose the patient was given at first one pint during the day; this was retained, and the amount was soon after increased to a quart, two quarts, and eventually three quarts per diem, without uneasiness being developed. With the administration of the milk there was a marked amelioration of all the symptoms. After two weeks crackers were given with the milk, and afterward raw meat was added. Two months after the commencement of the milk-treatment, the patient was entirely free from distress and able to use the ordinary diet.

No tumor could be discovered over the region of the stomach, but, from the history and age of the patient, the supposition points toward cancer near the pyloric end of the stomach.

Treatment of Fractures by Means of the Plaster-of-Paris Bandage.—The results obtained by the use of plaster of Paris as an immovable dressing in cases of fracture of the extremities place it in advance of any of the other dressings of its class. The main disadvantage is its weight; but this is more than compensated for by the readiness with which it may be applied, the quickness with which it solidifies, and its relative strength. It is the intention of the present article to furnish those who have not had the opportunity to learn its use, with the ordinary method of its application as practised in the New York hospitals, so that they may obtain results equal to those which are there obtained. Difference of opinion exists as to whether it is advisable to put up fractures immediately or not, but the majority of conservative surgeons believe that the immediate method exposes the patient to too much risk of sloughing, and possible gangrene. This is particularly true in those cases in which the patient is not under the immediate observation of the surgeon. As a rule, therefore, it is safest and best to allow the limb to rest for a few days, or even a week, so that the swelling shall cease to advance and begin to recede before placing it in plaster. It will be found also that, in a day or two after the fracture has been put up in plaster, it will be necessary to cut the plaster down anteriorly by means of a sharp knife. If the splint is then loose, from the further subsidence of the swelling, the sides of it may be brought close to the limb by means of an ordinary roller-bandage. When the swelling has been pretty thoroughly reduced, the surgeon will be enabled to put the fracture up permanently. Another advantage in inspecting the fracture, particularly if it is of the tibia, is, that a projecting fragment of bone may press against the splint, and in a day or two cause an abrasion, which, if not attended to, by forming a fenestra, would result eventually in a compound fracture.

In order that the subject may be made as clear as possible, it is advisable to divide the consideration of the matter into the following steps:

The Preparation of the Bandage.

Its Mode of Application.

The Means of applying it in Special Fractures.

The Modifications that must be practised in Compound and some Varieties of Simple Fractures.

Its Removal.

The Preparation of the Bandage.—It was formerly and by many is now the custom to use an ordinary roller-bandage of unbleached muslin as the basis upon which to spread the dry plaster of Paris. Latterly, a marked improvement upon this has been introduced in the shape of a gauze bandage having about twenty threads to the inch. This gauze is used by dress-makers as a stiffening for ladies' dresses, and the only precaution to bear in mind is to get the variety which has not been stiffened with starch. When this bandage has been obtained, it is evenly spread over with plaster of Paris to the depth of a line. The bandage is then rolled very loosely up, for a reason that will appear in the next step.

The Mode of Application.—The fracture is first reduced, and the limb is then covered from the extremity with either a layer of cotton-wool, a piece of old blanket, or in fractures of the leg with a long woolen stocking. The bandage is then soaked in water till it is thoroughly wet, and the time required for this depends mainly upon the lightness with which the bandage is rolled up after being covered with plaster. In the case of the gauze bandage referred to, two minutes will be sufficient, but other varieties may take longer. The limb being thus enveloped with a dry dressing as directed, the wet plaster-bandage is commenced at the toes in the lower, and at the palm of the hand in the upper, extremities, and carried as far up as may be necessary to go. The thickness of the plaster-dressing will vary with each individual case, but the average is about three folds of the bandage.

Its Application in Special Fractures; Fractures of the Tibia and Fibula.—It is only in exceptional cases that extension is required in putting up fractures of the leg. The bandage is commenced at the toes and carried up as far as the head of the tibia, and any deformity that has occurred during the manipulation is rectified before the plaster hardens. In exceptional cases, such as fracture of both bones of the leg, extension is required, and to a novice this presents a serious difficulty. It has been met, however, by a device of Dr. Bates, house-surgeon at Bellevue Hospital, and consists in placing one strip of adhesive plaster around the instep, and another around the heel, so arranged that a cord can be attached to the ends of the adhesive plaster, by which extension can be applied. After the requisite amount of extension has been obtained, the plaster-of-Paris dressing is applied in the manner previously directed; and, when it has sufficiently hardened, the ends of the protruding adhesive plaster can be cut off, leaving extension and counter-extension fully maintained by the plaster of Paris.

Fractures of the Patella.—Fractures of the patella are treated in two ways: Either the fragments of the patella may be approximated as near as possible by means of adhesive plaster and then the plaster-of-Paris bandage may be carried from the toes up to the groin so as to keep the limb immovable; or the following method may be adopted, which allows of the continual observation of the position of the fragments: A plaster-of-Paris bandage is carried from the toes up to the lower fragment of the patella, and a similar bandage is carried from the upper fragment to the upper third of the thigh. In the putting on of either bandage, a fold of strong wire is interwoven so as to leave a loop projecting like a buckle immediately over each fragment of the fractured patella, and, as soon as the dressing is sufficiently hard, the fragments of the patella are approximated as near as possible by a piece of strong cord passing between the projecting loops or buckles of wire. In order to obtain the best possible result, a wooden posterior splint should be applied to keep the limb perfectly immovable.

Fractures of the Femur.—In fractures of the femur differences of opinion exist as to the propriety of placing all cases in plaster, but, if it is considered advisable, the method is to obtain first of all satisfactory extension and counter-extension, and for this purpose different methods have been practised.

The most convenient for those who have a limited *armamentarium* is, to secure counter-extension by placing a sheet around the body beneath the arms and securing it to some reliable support. Another way is to use the sheet as a perineal band and then secure it to the support. Extension is obtained by carrying a wide strip of adhesive plaster along either side of the leg and attaching it by means of a cord to the pulleys used in reducing dislocations of the hip. When extension and counter-extension have been thus obtained, the limb is covered with a fold of old blanket properly fitted, and the plaster then carried up from the toes to the perinæum, then over and around the pelvis so as to render the extremity perfectly immovable. It is necessary to administer an anæsthetic to obtain complete muscular relaxation.

Fractures of the Pelvis.—If the patient lives long enough to warrant a favorable prognosis, the fractured pelvis is treated by carrying the plaster-bandage around the pelvis so as to hold it secure.

Fracture of the Radius; Colles's Fracture.—This fracture, if it is considered advisable to put it in plaster, and frequently it is, is treated by commencing the plaster in the palm of the hand and carrying it up to the middle or upper third of the forearm. The advantage of this species of dressing is, that the patient is at liberty to use the fingers, and has not the inconvenience of the usual form of dressing.

Fractures of the Radius and Ulna.—When both bones are broken, the dressing is commenced as before and carried up to the elbow-joint.

Fractures in the Proximity of the Elbow-Joint.—The bandage is applied as in the former cases, and, the elbow being bent in a convenient position, is carried up to the axilla.

Fractures of Humerus.—The bandage is used as in the former cases, and is then carried up to and over the shoulder, forming a cap which renders the shoulder immovable. This cap may be formed by cutting strips of the bandage and sewing them together, and covering the whole with soft plaster of Paris.

Compound Fractures.—In treating compound fractures of any of the extremities the plaster-dressing is first applied as in simple fractures, and, before the plaster hardens, a fenestra is cut sufficiently large to allow of the dressing of the wound. Whenever the wound is to be dressed, tow or cotton-wool is tightly wedged in between the integument and edges of the fenestra, which prevents the discharges from extending down between the plaster and the skin. In regard to the permanent removal of the splint, the stability of the limb is the only guide. In children who have suffered from rachitis an additional precaution is requisite after the union is apparently solid. This precaution consists in applying a splint that shall not impede locomotion, and shall guard against incurvation of the limb and possible refracture.

In fracture of the tibia the splint is made by carrying the plaster-bandage from the malleoli to the head of the tibia; and in fracture of the femur, by carrying it from the knee to the groin.

NEW YORK FOUNDLING ASYLUM.

Incontinence of Urine; Cure.—A boy, under the observation of Dr. J. J. Reid, had been suffering for some time with incontinence of urine, and at first it was proposed to try the method of sealing up the prepuce by means of collodion. After examining the patient carefully, it was found that there was dullness over the bladder, extending up for four inches. The boy was then directed to pass his water, and, after passing four or five ounces, a noticeable dullness still existed. The catheter was then introduced, and, by pressure made over the pubes, several ounces more were obtained. The following day he did not suffer from incontinence, and the obvious explanation of the case is that, from atony of the wall, the bladder could not empty itself, even when assisted by the efforts of the little patient. No stone could be detected, and the urine was in every respect normal. Tincture of nux-vomica was given to him in one-drop doses three times a day. At the present time he is doing well.

Treatment of Erythema and Intertrigo by Means of Collodion.—Collodion is a very valuable agent in the treatment of erythema and intertrigo occurring around the genitals and buttocks, and also between the folds of the neck. The mode of its application is to first thoroughly dry the parts, and then quickly, by means of a brush, cover the whole of the irritated and inflamed skin with a layer of collodion. Considerable pain is experienced for a few moments, and it is necessary to hold the patient till the ether has evaporated. In intertrigo of the genitals, the ordinary diaper must be dispensed with, and instead a folded cloth or diaper placed antero-posteriorly, so as to retain the urine and fæces.

Bibliographical and Literary Notes.

Art. I.—*A Manual of Diet in Health and Disease.* By Thomas King Chambers, M. D., Oxon., F. R. C. P., London, Lecturer on Medicine at St. Mary's School, etc., etc. Philadelphia: Henry C. Lea, 1875.

The author informs us in a very brief preface that his aim has been to make a purely practical hand-book of diet, and that he has, therefore, purposely omitted the discussion of the chemical, botanical, and other questions that would naturally present themselves in connection with the important subject of his work. After several chapters on the choice and preparation of food, and on digestion and nutrition, he proceeds to consider the special dietetics of health, beginning with infancy and motherhood, and treating in succession of the regulation of diet in the various stages, callings, and conditions of life. Few writers could have invested a commonplace subject with so much interest or have conveyed so much really valuable information regarding the use of foods. There are a few points in which we might differ from Dr. Chambers, but it must be remembered that he writes for a people whose climate and habits are different from our own. Yet the general views of the author, as to the means of obtaining and preserving the highest mental and physical vigor of which the individual is capable, are marked by sound wisdom, and are applicable with slight modifications to all civilized races. Indeed, much of his advice is peculiarly appropriate to the American race of to-day, and might be followed with unquestionable benefit. One excellent recommendation of the work is that the author has no narrow prejudices to indulge, but deals in a calm and rational manner even with such questions as the use and abuse of alcoholic stimulants.

The latter third of the work is devoted to the consideration of dietetics in sickness, and contains many original suggestions. A chapter is assigned to each of the large classes of diseases and its appropriate dietary management. Many new recipes are given for the preparation of wholesome dishes for the invalid, and from first to last the author keeps his promise to be eminently practical.

The style of writing adapts the volume perfectly to the general reader, but, unlike many popular works of the kind, it is uniformly dignified in tone, and may be read by the profession with profit and pleasure.

Art. II.—*A Report on the Hygiene of the United States Army, with Descriptions of Military Posts.*[1] 4to, pp. lx.–567. Washington: Government Printing-Office, 1875.

This voluminous publication is more especially useful as a work of reference for the medical officers of the United States Army.

The "Report on the Hygiene of the United States Army," by Assistant-Surgeon John S. Billings, covering fifty-five of the preliminary pages of the volume, shows a great improvement, during the past five years, in the hygienic regulations of the army; yet some advances, such as are recommended by the author, may yet be instituted. Efforts are being made to render every thing pertaining to the wants of the soldier, such as clothing, food, etc., conform to a proper standard of excellence.

The mode of construction of hospitals is a question which interests not only the medical staff of the army and navy, but also the whole profession in towns and cities. Dr. Billings thinks that the evils of "hospitalism" are not provided against by the adoption of the pavilion plan. He seems, however, to accept the general recommendation of military surgeons in both this country and in Europe of the barrack hospital, made of wood, and intended for limited duration. For permanent hospitals in cities a plate and description are given of the Soldiers' Home Hospital (fifty beds), a three-story building which appears to be well constructed to secure ventilation as well as all necessary conveniences. Our space is too limited to describe it in this notice. The author thinks that no system of ventilation by diluting vitiated air will prevent the transmission of disease. So far as gases are concerned it may be effective, but, as the real dangers of hospitalism probably arise from living solid particles, that portion of the air containing these organic substances, however few in number, will prove effective in causing disease when it has opportunity to act. Hence, the prompt and complete removal of all organic poisons, "as fast as formed, is the only certain way of preventing their peculiar zymotic effects;" and no "system of hospital construction or ventilation will prevent hospitalism which does not allow of a more minute classification of cases than is now practised, and in which ample provision is not made for the isolation of cases when needed." He thinks sources of contagion need not be looked for so much in the saturation of the walls of the building as in the furniture, clothing, etc.

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[1] Circular No. 8: War Department, Surgeon-General's Office, Washington, May 1, 1875.

The body of the work is filled with a "Description of Military Posts" throughout the United States, including all that is of interest pertaining to location, topography, barracks, hospitals, hygienic conditions, etc., etc.

ART. III.—*On Paralysis from Brain-Disease in its Common Forms.* By H. CHARLTON BASTIAN, A. M., M. D., F. R. S., Professor of Pathological Anatomy in University College, London; Senior Physician to the National Hospital for the Paralyzed and Epileptic, etc., etc. With Illustrations. New York: D. Appleton & Co., 1875.

THIS work consists mainly of lectures delivered by the author in University College Hospital last year. He has subjected the matter to careful revision, and has made several additions, but the easy and direct style of the lecture-room has been preserved, so that we find the volume not only full of valuable information, but also very pleasant reading.

In no other work with which we are acquainted is the subject of paralysis from brain-disease so clearly treated. The classification of the different varieties of each disease is of special value in leading the student to a comprehensive view of the whole, while the general arrangement of the work is eminently systematic. It is only by comparison with what is to be found in the usual text-books that the importance of Dr. Bastian's lectures can be fully appreciated. It is evident throughout that the author is drawing on a large and varied clinical experience, and the skillful manner in which he introduces his illustrative cases shows him to be a master of the art of diagnosis. We would direct attention especially to the chapter on the difficulties of diagnosis in the apoplectic state, and the means of distinguishing, as far as may be, between the coma resulting from effusion, injury, narcotic poisoning, intoxication, uræmia, epilepsy, etc. Of equal value is the chapter on the differential diagnosis of embolism, thrombosis, and hæmorrhage. But we have not space to refer in detail to the many excellences of the work before us, nor do the author's views seem to call for much criticism. We heartily recommend the book, which fortunately is not a large one, to the attention alike of the student and the practitioner. The illustrations are graphic and well drawn, and the typography all that could be desired.

ART. IV.—*Lectures on Prescriptions and the Art of Prescribing.* By W. HANDSEL GRIFFITHS, Ph. D., Licentiate of the Royal College of Surgeons, Edinburgh, Professor of Chemistry in the Ledwich School of Medicine, etc. London: Macmillan & Co., 1875. Pp. 150.

WE can recommend this little book as a very useful one to students who wish to attain the art of prescribing medicines in the simplest and most effective manner. After a brief exposition of the grammatical principles on which prescriptions are written, and the signs and symbols employed, the author lays down the rules regarding the combination of medicines, their incompatibilities, doses, etc., and gives a series of exercises in prescription-writing, interspersed with practical hints, cautions, and remarks.

ART. V.—*Till Retroflexionernas Aetiologi och Therapi.* At Dr. FREDRIK EKLUND. I Stockholm. (Etiology and Therapeutics of Retroflexion.) 8vo, pp. 48, and table. Stockholm, 1875.

THE author, at page 10, gives his reason for writing this monograph: "Relying on a constantly-increasing knowledge of the anatomy and physiology of the uterus and its connections, and on a dexterity in gynæcologial examinations, which has been increased by daily practice, and after mature and conscientious experimentation, I have for a number of years devoted myself to the treatment of changes in the form and position of the womb. I entertain an unalterable opinion that, by means of an orthopedic method, by treatment with the intrauterine style [stift], not only the form of the uterus, but also its position, can be restored to a normal condition, and my firm belief is that this method has a great future and is destined to work the cure of thousands of women who, without it, would be doomed to undergo constantly-increasing suffering."

After a thorough investigation of the causes of the disease, with due reference to the literature of the subject, the author discusses its therapeutics. The advantages and the disadvantages of the various pessaries are reviewed, and at page 29 he explains the meaning of the word *stift*, as applied to his favorite instrument: "By the word 'stift,' which, on account of its brevity, is a very appropriate expression, I understand the same as Simpson by the *intrauterine pessary*, Martin by the regulator, Winckel by the expression *elevator*, and the Yankees by the word *supporter*."

The various forms of the instrument are then discussed, and the preference given to Amann's method, by means of which the author obtains radical cures in four and a half months, on an average.

The plate of the pessary rests on a vaginal tampon of cotton, and, as it was necessary to saturate this with the best possible antiseptic, Dr. Eklund tried all varieties. Salicylic acid was found to be entirely useless, but Lister's formula (*see* Schmidt's *Jahrbucher*, Band 160, 1873, No. 10, p. 46) gave perfect satisfaction. The tampon should be boiled in a concentrated solution of boracic acid, then dried, and saturated with a solution of tannin and phenic acid in glycerine-and-water.

The larger portion of the book is occupied with the consideration of this method of treatment, and, at its close, is given a table of twenty-five cases thus treated, from which it appears that nine patients were cured with perfect success. In seven of these, objective examinations have shown that the uterus continues to retain its natural form and position in the pelvis. Two living in the country could not be seen, but letters from them state that they continue to feel perfectly well. Three (17 per cent.) which were cured had a relapse. Two were not subjected to this treatment. In four the treatment is still continued. Seven were improved subjectively, and felt almost well, but were not radically cured because they discontinued treatment too soon.

If we deduct these seven, and the two who did not undergo the *stift* treatment, sixteen remain, of whom seven (nearly 44 per cent.) were thoroughly and certainly cured. If, also, the two who continue to feel well are reckoned with these, we have still only 55 per cent. cured. G. R. C.

Art. VI.—*Clinical Lectures and Essays.* By Sir James Paget, Bart., F. R. S., D. C. L., Oxon., LL. D., Cantab., Sergeant-Surgeon Extraordinary to Her Majesty the Queen, etc., etc. Edited by Howard Marsh, F. R. C. S., Assistant Surgeon to St. Bartholomew's Hospital, etc. New York: D. Appleton & Co., 1875.

The profession will be glad to see collected in this form the most valuable and important of the clinical lectures that have been delivered by Sir James Paget since the year 1867. Many of them have been already published in medical journals or in hospital reports, but they belong to that sterling kind of medical literature that never grows old. Pregnant with the wisdom of one of the most eminent surgeons of our age, they will be received with welcome alike in the New World and in the Old, and we feel that it would be superfluous to direct attention in detail to the several lectures and essays that compose the volume. The editor has shown excellent judgment in performing his part of the work, and has added an appendix, giving some explanations that seemed necessary. We are glad to see that the author states, in a note of a case of death from chloroform, that for the last two years he has "used only sulphuric ether, or for short operations nitrous-oxide gas or ether-spray." This is worthy of a surgeon who is distinguished not less by his humanity and kindness than by his wise judgment and operative skill. His sincere regard for the patient's welfare is well expressed in the following extract from his lecture on the calamities of surgery: "Never decide upon an operation except in consideration of the patient's interests alone. Let no thought of your own interest, or of your own reputation, have any place in the consideration of what is to be done for this or that man. If an operation is not purely and wholly for the good of the patient, it should on no consideration whatever be done."

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Reports on the Progress of Medicine.

SURGERY.

Prepared by SAMUEL B. WARD, M. D.

Bullet-Wound of the Stomach and Kidney.—On the night of May 29th, W. F. D. received a pistol-wound, the ball entering at a point over the cardiac portion of the stomach, passing downward and backward, through the region of the left kidney, and lodging beneath the muscles of the back, from which location it was extracted on May 31st by Dr. M. E. Jones, of Pittsfield, Mass. The patient had at first profuse hæmatemesis, which lasted until the following morning, and was checked by keeping small lumps of ice in the mouth until they melted. Up to June 3d the patient had also an alarming hæmaturia, which was successfully treated with gallic acid. The remainder of the treatment consisted of low diet for a week, and afterward beef-tea, milk, and custard. The only medication was morphine to relieve pain, and two-grain doses of quinine. There were no symptoms of peritonitis at any time, and on June 10th the patient was able to ride out, and a good recovery was considered certain.—*Boston Medical and Surgical Journal*, August 5th.

The Nitrite of Amyl in case of threatened Death from Ether or Chloroform.—In the London *Lancet* for July, Mr. C. Bader records three cases in which there was faintness, defective respiration, or defective heart-action, during the administration of anæsthetics, and in which the condition was immediately relieved by the inhalation of from three to ten drops of the nitrite of amyl from a piece of lint placed over the patient's mouth and nose.

The most striking effects of the drug were the quick restoration of breathing, of a good color, and the rapid appearance of nausea and vomiting. "It remains to be shown whether injection of this agent will have a still better effect."

[So far as we know, Dr. F. A. Burrall, of this city, was the first to recommend the trial of this means of resuscitation, on purely theoretical grounds, in the New York *Medical Gazette*, of June 11, 1870. By reference to the record of the autopsy in the fatal case of ether-narcosis, published in the *Lancet*, an abstract of which may be found in the NEW YORK MEDICAL JOURNAL for August, 1875, it will be seen that Dr. Benjamin W. Richardson classes "ether, with alcohol, amyl nitrite, and others of the same series, as an agent which, by its action on the organic nervous supply of the minute circulation, reduces the arterial tension, and produces narcotism by congestion of vessels and suspension of circulation through the cerebral mass." It would seem difficult to reconcile their supposed antagonism with their supposed similar physiological effect. S. B. W.]

Horse-hair for Sutures.—In a communication to the *Boston Medical and Surgical Journal*, of August 5th, this is recommended by Dr. Wm. Warren Greene, not as any thing new, but as a material deserving a more prominent place among surgical appliances. The writer thinks that it may profitably supersede all other material for sutures, except where greater strength is required, and he has never secured such beautiful, delicate linear scars with any other article.

The doctor recommends to take the long hair from the tail of a young, healthy horse, and first thoroughly rinse it in warm water; then boil it for half an hour in a solution of about an ounce of bicarbonate of soda in two quarts of water; then rinse it in clean warm water, and it is ready for use. Thus prepared it is perfectly non-irritant; does not snarl or kink; is more easily tied than any other material, and not inclined to slip while tying the second knot; and, twisted in a rope or double coil, a single strand is easily drawn by seizing the middle.

It is strong enough for all ordinary cases; but, when greater strength is needed for the general support of flaps, silk or silver wire may be used for that purpose, and intermediate sutures of hair for accurate coaptation of the edges.

Scarless Eradication of Nævi.—Mr. Richard Barwell, of Charing-Cross Hospital, thinks that nævus maternus should not be subjected to operation unless some special consideration renders interference necessary. Such consideration may be rapid growth, inducing danger from hæmorrhage; or a certain location, over the mastoid process, for instance, where it is liable to become a cirsoid aneurism, or aneurism by anastomosis; or an exposed position on the face, neck, or arm of a female child, where it is extremely unsightly. In the latter case it becomes exceedingly important to choose an operation which shall leave no scar—hence such as shall destroy no skin, not even that discolored by the growth to be eradicated.

The mixed nævus, therefore, requires two forms of treatment, one for the skin, and the other for the subcutaneous portion, and these may be carried on simultaneously. Complete strangulation by a ligature is a painful process, frequently causes sloughing of the skin, and, if it does not, then the dead morsel underneath becomes a source of great danger. Several years' experience with many cases leads Mr. Barwell to recommend the following procedure:

"Having carefully made out the limits of the nævus, both as to depth and circumference, a needle, armed with not too fine a wire, is passed through the skin, half round the tumor and out again opposite the place of entrance; the needle is then again introduced at the same puncture by which it had just emerged, and, passing round the other side of the tumor, makes its final exit at the opening first made. In certain cases, large size or peculiar shape of the tumor may render it necessary to bring out the needle twice, instead of only once. However that may be, the effect is to inclose the base of the tumor in a wire loop, both ends of which, emerging at the same opening, are under perfect control. These might merely be twisted together until the requisite tightness is attained, but in this practice certain inconveniences arise which are obviated by another expedient. A vulcanite oval plate, about three-quarters of an inch long and an eighth of an inch thick, has two holes bored obliquely through its thickness; and on its external surface two little studs project close to where these holes emerge, and where also they are farthest apart. By bringing the end which passes round the right side of the nævus through the left hole, and *vice versa*, the wire is made to cross, while the oblique direction of the holes permits it to run smoothly. The surgeon, having thus arranged his appliance, draws upon the wires until the nævus is rather tense, and then twists each end round the nearest stud. A piece of lint, slit so as to bestride the wire, is introduced between the skin and the vulcanite button, and prevents any undue pressure by the edges of the plate."

The wire must be tightened every three or four days, until it has cut through the base of the nævus with its vessels of supply. The child suffers no pain except while the wire is being tightened, and the small amount of pus that forms escapes through the needle-punctures.

While the subcutaneous portion of the nævus is thus destroyed, the skin will in many cases begin to shrivel and lose its morbid color. When this does not occur spontaneously, it is best effected by brushing the colored parts with strong nitric acid, allowing it to remain a few seconds, and then washing it off with an alkaline solution. Care must be taken not to leave on the acid long enough to destroy the skin or produce ulceration. This had best be done while the wire is still encircling the base of the nævus.—*London Lancet*, July, 1875.

Death following Aspiration in Pleurisy with Effusion.—Dr. Ernest Legendre reports the case in a recent number of the *Gazette des Hôpitaux.* Fifteen days after the onset of an attack of acute pleurisy, there was considerable effusion, and a week was spent in endeavoring to promote absorption by blisters, diuretics, and the like. Paracentesis was then performed with Dieulafoy's aspirator, and about three litres of pink, turbid fluid withdrawn. The operation lasted half an hour, was accompanied by slight cough, but was followed by marked relief. Resonance returned over the chest. In a very short time dyspnœa recurred; there was copious outpouring of secretion into the air-passages, and cyanosis, death occurring from asphyxia in five minutes. Dr. Legendre thought the death to be due to rapid bronchial secretion, and to the inability of the lung to expand fully, from its being compressed or bound down by firm false membrane. There did not seem to be any thing peculiar in either the case or the operation. Dr. Legendre remarks: "It was the unlooked-for result which determined me to publish this observation, deeming it to be of some use to my young *confrères*, and to prevent them from compromising their reputation by affirming, as I did in this case, that marked relief and certain cure would follow. It will be always prudent to make some reservations."

OBSTETRICS.

1.—*On the Propriety of administering Iron during Pregnancy as a Preventive of Post-partum Hæmorrhage.* By John Bassett, M. D., Professor of Midwifery in Queen's College, Birmingham. [Transactions of the Obstetrical Society of London, vol. xvi.]

I desire to place before the Fellows of the Obstetrical Society of London a portion of my experience on the subject of *post-partum* hæmorrhage, and I ask permission to do so on the grounds that I have had a wide experience, and that I have carefully watched all the phenomena connected with flooding for a period of more than five-and-twenty years.

At the commencement of my career as an accoucheur I learned from my preceptor Dr. Lever the importance of paying attention to the health of pregnant women; this advice was given more especially in view of the certainty of puerperal convulsions occurring in the labors of those who suffered from œdema of the hands and face during pregnancy; and of the probability of severe hæmorrhage following the birth of the child in those patients who were the subjects of chronic Bright's disease. As time passed away the value of the advice just alluded to became more and more apparent, as one or other of the ills that pregnant women are liable to came under observation, until I arrived at the conclusion that the popular belief in the inefficiency of medical treatment during pregnancy was based upon a fallacy, and that while it could not be asserted that all the disorders of pregnancy would pass away as readily as in the non-pregnant state, still that very many of them were capable of subjection and others of mitigation, and that it was the duty of every accoucheur to bear constantly in mind that pregnancy was Nature's highest physiological work, and one that ought to go on without trespassing on the domain of pathology, but one which from its delicacy and minuteness was liable under the most primitive conditions to run into error. It will, I think, be accepted as a cardinal proposition that a healthy conception and gestation will be followed by a natural labor, a favorable recovery, and a successful period of nursing, and that departures from this standard may take place at every stage of the process; the primitive cells may be endowed with a feeble vital power, or they may contain within themselves poisonous elements, or they may fail in their growth from the pabulum on which they are sustained being defective in quantity or depraved in quality, and so we have the foundations on which the numerous irregularities of pregnancy are based.

My habit of paying attention to the health of pregnant women soon brought me into close relation with those who have severe floodings after the birth of each child; these I found almost uniformly out of health, and although they did not complain so much as others, still they were subject to fatigue, were listless, dyspeptic, nervous, and of weak muscular fibre;

the appetite for meat as an article of diet was commonly defective. I am not able to say they all presented similar characters of ill-health, since some would have an excess of fat in the body and others a deficiency, but they all appeared to agree in a defective power of assimilation and organization; they invariably described themselves as weak and easily fatigued; the majority complained of cramp and pain in the side—indications that the pregnancy was not a healthy one and that a morbid process may be going on in the placenta; these cases watched at the time of labor still presented signs of want of muscular power, the labor was either too easy and terminated too rapidly or became powerless; the placenta was in some cases small, soft, and friable, and in others preternaturally hard, from some part of it having undergone inflammatory and fatty changes. The blood in some of these cases seemed unlimited in quantity, but was watery and dark-colored; the uterus after delivery assumed various forms, sometimes it would not contract at all, more commonly, however, one part would go into a violent state of spasm, while the other was perfectly flaccid, and, if this flaccid portion happened to be the placental site, blood was poured out as from a fountain; in other instances the contraction was regular and strong, so that the coagula and fluid blood were expelled, to be followed by relaxation and further hæmorrhage.

Unfortunately, we do not understand perfectly either the physiological or the pathological results which pregnancy induces in the system. Writers affirm that during pregnancy the volume of the blood is increased and that it is altered chemically and physically. The French chemists Becquerel and Rodier inform us that pregnancy exerts a marked influence over the composition of the blood, that the density of the liquor sanguinis is diminished, while the water, fibrine, and phosphorized fat are increased, and that the albumen and corpuscles fall below the healthy standard. Simon confirms this by stating that the fibrine and fatty matters are increased, while the solid constituents are diminished; these are changes in a retrograde direction, and if they proceed far will very readily explain why anæmia and chlorosis are sometimes marked results of pregnancy, and why, where we have defective power of nutrition and assimilation, we have that constitutional debility which is associated with an irregular supply of nerve-power, faulty muscular organization, and redundance of watery blood, which fails to convey its natural stimulus to the organs with which it comes in contact, and hence we have powerless labor, *inertia uteri*, and hæmorrhage. Further, the chemical changes just noted may explain why with a real debility we have such a tendency to inflammatory action, a fact within the knowledge of all who have watched these cases closely; further observations are needed on the pathology of the blood in general, and especially on the changes which it undergoes in a healthy and a morbid pregnancy. It is also desirable that the muscular structure of the uterus should be carefully examined, not only in those who are liable to *post-partum* hæmorrhage, but in other instances, where the placenta has been the seat of marked pathological processes, in order to ascertain, on the one hand, how far the uterus has participated in the defective power of organization, and how far, on the other, it has partaken in the fibrous and fatty changes of which the placenta is the seat.

I may now proceed to relate what has occurred with reference to some of my patients. One case will suffice as an illustration:

My attention was particularly directed to the case of Mrs. G——, on account of the severe floodings which she had after the births of her first three children; her life in each instance seemed to have very nearly ebbed away, and it appeared but too certain that she must perish if she continued childbearing; an examination of her when seven months advanced in her fourth pregnancy convinced me that she had some of the signs of debility of which I have just spoken, and with a view to improve her health and strengthen her muscular fibre I prescribed a mixture containing soda, ammonia, and ammonio-citrate of iron; but, as the proceeding was a tentative one, the method was not carried out with accuracy; however, a marked improvement occurred in her labor, both in the power of the uterus and in the greatly diminished loss of blood; in a subsequent pregnancy, where the treatment was carried through with care, the most marked result followed in the shape of a perfectly natural labor, without unusual loss of blood. Other instances in confirmation of these facts might be quoted; this would be a repetition of words; nor have illustrations in the opposite direction been wanting where patients who have previously flooded have failed to submit themselves to treatment, although they have derived singular advantage from preliminary treatment, in some of the previous confinements. The cause of this omission has sometimes rested with myself, at others with the patient; as a rule, patients are most willing to submit to any treatment which will prevent the much-dreaded floodings, and in the majority of cases where flooding was known to be likely to occur and no preventive treatment had been adopted, it did return in as violent and marked a form as on previous occasions.

As regards the method carried out I have usually advised my patients to see me when a little more than seven months advanced in pregnancy, and earlier than this if they found any thing amiss with themselves; I have then prescribed *iron* in combination with an *alkali* or an *acid* as the circumstances seemed to indicate; if the arterial tension justified and the secretion from the kidneys was defective, *potash* was usually administered; if, on the other hand, the liver appeared to be sluggish and the skin sallow, then *soda* was preferred; in other instances, where pain after food was complained of, and an acid was grateful to the palate, the tincture of steel was ordered with hydrochloric acid and calumba. In all cases regularity of living, uniform clothing, daily exercise, and attention to the secretions, were strictly enjoined, and no doubt these may be credited with some of the improvements which took place in the health of my patients. It was not considered needful in every instance to continue the treatment up to the day of confinement provided a fair standard of health had been reached before; as regards this, no rule can be laid down; each case must be judged by itself.

In conclusion, I ask at the hands of the Obstetrical Society that the method which I have found so useful may receive a fair trial and be judged by the result; whatever our foresight, it will be impossible to always anticipate *post-partum* hæmorrhage, since it frequently arises from circumstances which are brought about during the progress of the labor, nor is it any part of my present object to travel over the now familiar ground of the anticipation and treatment of *post-partum* hæmorrhage, since the several questions embraced on this subject are receiving a judicial examination at the hands of the profession.

Dr. Barnes asked if any of the Fellows had ever seen any reason to suppose that premature labor had been caused by the administration of iron. He thought we had not sufficiently ascertained the changes and diminution of vital force induced by pregnancy. A series of changes of a most important kind occurred, and if we only understood these we might preserve our patients from the consequences. As a rule, pregnant women did not place themselves under treatment. He alluded to an instance where a pupil of his had given iron to a pregnant woman, who was in consequence accused of intending to produce abortion. Dr. Barnes himself had given it in dozens of cases, and had never witnessed any ill-consequences or instances in which abortion could be traced to its administration. He thought iron might safely be given where anæmia was present during pregnancy, to improve the patient's condition, and lessen the risk of hæmorrhage during parturition.

2.—*Intra-uterine Craniometry.* By J. Matthews Duncan, M. D. [Edinburgh Medical Journal, June, 1875.]

The subject of intra-uterine craniometry, or measuring the dimensions of the fœtal head before birth, is surely destined to assume great importance, on account of its affording the accoucheur information of the highest value to guide him in the treatment of labor rendered difficult by deformities of the pelvis, or other cause of contraction of the genital passage, or by enlargement of the head.

It is several years since I called the attention of the profession to the remarkable neglect of intra-uterine craniometry, while the closely correlated procedure of pelvimetry was, and had long been, the subject of much investigation and experiment, and that not without valuable results for practice.

To show the practical importance of intrauterine craniometry is so evidently a work of supererogation that I shall not enter upon it. It is the natural and now desiderated complement of pelvimetry; each, in any individual case, adding importance and interest to the other. And it is the more desiderated on account of the recognized imperfection of our best pelvimetry, an imperfection which is truly reflected in the well-known apothegm of Dubois and of Credé on the propriety of waiting, especially in first deliveries, to see what the natural forces of labor can effect, even in a considerably contracted pelvis; and which is illustrated by the occasional occurrence, in the hands of learned and experienced men, of spontaneous delivery when even cæsarean section had been expected and prepared for.

My object in this note is merely to indicate the lines of inquiry already occupied, or that should be taken up, with a view to the advancement of this matter. These lines of inquiry either lead, or have already led, to valuable results, which have a bearing more or less direct on the great object of telling the dimensions of the head of a child before it is born. But it is important to remark that mere dimensions are not all that the accoucheur desiderates, and it is to mere dimensions that I am now directing attention.

Another important quality, for the obstetrician, of the fœtal head is its mouldability, a quality in which fœtal heads differ greatly. The difference is not only in degree of mouldability, but in kind, and also under pressure on different parts or in different directions. Any one who has made experiments with a view to the study of the comparative merits of version and the long forceps, will recognize the interest attaching to these qualities of the fœtal head.

In stating the subject of intra-uterine craniometry, I shall first allude to those inquiries from which only a little aid is to be expected, and then advance to those which are more or less certain of being fruitful in the desired way.

We must not despise indications of the most trifling value, such as are to be derived from observation of—

1. *The race to which the parents belong.*
2. *The stock or breed from which they spring.*
3. *The size of the individual parents, and especially of their heads.*

Much interesting knowledge is, it is well known, already accumulated as to the cranial capacity of different races of men. But, so far as I know, the observations have been confined to adults; and while these are, no doubt, of value in reference to the matter on hand, it would be more important for us to have measurements of the fœtal heads of different races. I may remark that we already possess many contributions to the healthy pelvimetry of different races.

The influence of the stock or breed from which the parents are sprung, and of the size of the individual parents, and especially of their heads, is matter of general knowledge. This kind of influence has been hitherto clearly observed only in some of the lower animals, in which there are more remarkable variations according to breed and in individuals than in the human race, and in which the observations have included both parents. Indeed, although few would express any doubt as to the influence of stock or breed or family, and of individual parents, yet the subject cannot be said to have been in any degree scientifically examined. There can, however, be no doubt that it is well worthy of careful scrutiny.

Gassner and Frankenhaeuser have indeed shown the very interesting direct relation between the weight of the mother, the size of the mother, and the weight and size of the fœtus; but their observations need to be corrected or added to by taking into consideration the male as well as the female parent, and the former has hitherto been altogether omitted from the inquiry.

The next points to which attention must be paid are—

4. *The age of the parents;* and,
5. *The number of the pregnancy.*

On these matters it is well known that much labor has been bestowed by Hecker, Veit, Frankenhaeuser, Castell, Wernich, Cohnstein, Schroeder, and others; the general opinion being, that weight and length of the child and size of the head increase with the age of the mother, and with the number of the pregnancy; but I have never formally disavowed my own opinion as to a climax and anti-climax in the measurements of the fœtus, rising from immaturity to maturity of the mother, and falling from maturity to elderliness, and rising from a first pregnancy to a higher number, and then falling off with an excessive number.

We now come to a means of arguing as to cranial measurements, which is familiar to all, viz.:

6. *The period of pregnancy.*

Every one is familiar with the anatomical basis of the practice of induction of premature labor, and with the actual measurements by Figueira and many others of the sizes of fœtal heads, and especially of the most important bi-parietal diameter, at different periods of pregnancy.

7. *The sex of the fœtus.*

This can seldom be made out before its birth, even during labor. In the rare cases when it can be so, its significance will be easily appreciated. Every one knows the measurements and observations of Clarke, Quetelet, Riecke, Simpson, and their followers, which show the greater size of the male than of the female head, and the greater difficulty and danger of its birth.

The value of the rate of the fœtal heart's pulsations, as pointed out by Steinbach, Frankenhaeuser, and Cumming, must not be altogether forgotten. So far as the rate can be held to indicate the sex, it may be held as contributing to our information under this head.

We reach now methods of more exactness, which have only recently been introduced, and which have still to be perfected. Even as they at present stand, however, in their youthful feebleness, they are far superior to the presumptuous method which we often follow, and which is truly only the rash guessing of men not so ignorant as to be insensible of the advantage of accurate knowledge.

8. *The size or length of the fœtus.*

The recent works of Ahlfeld and Sutugin show that the length of the fœtus can be, with considerable accuracy, made out during pregnancy. The researches of Hecker, Schroeder, and Ahlfeld, show that the length of the fœtus is a better criterion of its development than its weight. Hecker, Ahlfeld, Pfannkuch, Sutugin, and lastly Fehling, have shown that the development of the head, as measured by its horizontal circumference, increases in some kind of direct ratio with that of the body. The length of the fœtus is thus shown to give us a means of estimating the size and development of its head. To this deduction, there is, as Fehling points out and illustrates by example, a remarkable exception in the case of twins.

9. *The size of the anterior fontanelle.*

This can also be ascertained occasionally in an uncertain way during pregnancy, through a thin lower uterine segment, and, at any rate, in the early part of labor. Now, Fehling has recently shown in an admirable paper, that this fontanelle increases in size during the latter part of pregnancy, the part in which the operating obstetrician is most interested; and he points out that its size may be used as an indication of the general fœtal development, its smallness as an indication of the opposite. His interesting observations form a remarkable addition to those of Elsaesser, on the increase of this fontanelle for some months after birth.

10. *The length of the sagittal suture.*

The importance of this has been pointed out by Schroeder; but, so far as I know, he has made no measurements with a view to its being utilized in practice. A great improvement is made in this measurement by Fehling, who calls it the distance between the anterior and posterior fontanelles, and takes it from the upper angle of the posterior fontanelle to a line crossing the anterior fontanelle, and joining the two coronal sutures. Fehling's observations show a kind of direct relation between this dimension and the length of the child.

11. *Measurement of the fœtal head through the uterus and abdominal wall.*

This is a plan which I have attempted, but without sufficient repetition and care to enable me to say what value it may possess. I trust, however, to be able, ere long, to lay before the Society careful observations made to determine this point. It is a matter of course that such observations will be easier carried out in advanced pregnancy in cases of contracted pelvis, when it is most desiderated, than in ordinary pregnancies, especially the first, in which the head sinks deeply into the bony cavity. In these latter, however, some combination of internal and external measurements may be available.

In cases of hydrocephalus the value of this plan is well known, and has no doubt been realized by practitioners who have met with these not very rare cases.

12. *Measurement by the forceps.*

It is easy to remark that the blades of the forceps will be more separated in proportion as the head is large, and that the handles are separated exactly in proportion to the distance between the blades. As the practitioner can determine what diameter of the head he seizes, and how much the head occupies the belly of the instrument, he can by their application determine the size of a diameter of the head, and by reapplications he may arrive at the determination of other measurements. I have often received good indications from the plan, and in one case was led by it to recognize hydrocephalus; and, in a report of a lecture by Carl Braun, I find he has availed himself of this expedient to measure a hydrocephalic head.

It is at once evident which of these plans are available during pregnancy, which during labor, and which in both states. It is also evident that they are all as yet very imperfect and little reliable resources, whether adopted singly or in combination. It is in the latter way, no doubt, that the practitioner should proceed.

Investigators, however, should not be discouraged, for they may reflect on the imperfect and unsatisfactory character of pelvimetry, even now after so much learning and ingenuity have been expended upon it. Practitioners, also, will not despise the small beginnings, for they will be glad to have the value and precision of pelvimetry eked out by the use of intra-uterine craniometry.

THERAPEUTICS AND MATERIA MEDICA.

1.—*The Continued and the Frequent Dose.*[1] By Edward H. Clarke, M. D., Late Professor of Materia Medica in Harvard University. [Boston Medical and Surgical Journal, August 5, 1875.]

The sytematic treatises on materia medica with which American and foreign medical literature abounds usually give, near the close of their description of the various drugs whose virtues they rehearse, the appropriate dose for therapeutical use, and also the toxicological dose, if the article is capable of exerting any poisonous action on the human economy. Thus Waring, after describing the salts of of morphia, adds, "Dose of the morphia salts, gr. ⅛–¼–½ up to gr. 1."[2] Stillé concludes his account of the carbonate of lithium with the statement that it "may be administered in doses of from one to five grains three times a day, dissolved in not less than four ounces of water."[3] The United States Dispensatory, speaking of the sulphate of quinia, says, "The dose varies exceedingly, according to the circumstances of the patient and the object to be accomplished;"[4] and then adds that, as a simple tonic, a grain may be given three times a day, or more frequently; that in intermittents, from twelve to twenty-four grains may be given between the paroxysms, in divided quantities, according to the condition of the patient and other circumstances. These and similar statements with regard to the doses of medicines, that may be found in all works on materia medica and therapeutics, are essential. They are true as far as they go, but they do not represent the whole truth. They fail to give to the student and practitioner an accurate notion of what an important factor in therapeutics the dose is; and especially do they fail to convey an accurate notion of the therapeutical importance of variation of dose and method of administration.

In saying this, I do not forget that we are told by all works on materia medica that doses should vary with age, sex, temperament, idiosyncrasy, disease, habit, and the like. This is all true. It has been confirmed by the experience and observation of centuries, but it is not the whole truth. It does not give an adequate notion of the therapeutical power which can be exerted by appropriate physiological doses.

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[1] Read before the Section of Practical Medicine of the American Medical Association, at Louisville, Kentucky, May 4, 1875.

[2] "Practical Therapeutics," American edition, p. 419.

[3] "Therapeutics and Materia Medica," fourth edition, vol. ii., p. 351.

[4] "United States Dispensatory," thirteenth edition, p. 1383.

It is the object of this paper to call attention, as briefly as possible, to this therapeutical power, and especially to the action of what, for want of a better designation, may be called the therapeutical action of continued and frequent doses.

Doses of medicines may be appropriately considered under four distinct heads or classes, namely: 1. Single doses; 2. Continued doses; 3. Frequent doses; 4. Toxicological doses. The first and last of these, or the single and the toxic dose, are the doses given in treatises on materia medica, and are recognized as representing the therapeutic and poisonous action of any given drug. It is unnecessary to dwell upon them, for they are universally understood. But the bare statement of what is the legitimate single or average toxicological dose of an article like opium, for instance, gives no adequate or intelligent notion of what the continued or frequent dose of the same drug is; nor does it give any adequate or intelligent notion of the physiological action and consequent therapeutical power of its continued or its frequent dose.

Let us consider first the *continued dose.* By this is meant the administration of a drug in such a way that the elimination of one dose shall not be completed before the absorption of the following dose has commenced. "By this method of administration the blood is kept constantly charged with the drug. . . . The difference between the single and the continued dose is the difference between keeping the blood constantly charged with the article administered, and allowing the blood not only to free itself from one dose, before a second dose is administered, but making the intervals between the doses so long that the blood shall be practically a longer period uncharged than charged with it. . . .

"The observance of this difference is important physiologically and therapeutically. The neglect of it explains much of the confusion and discrepancy that may be found in the statements of different observers with regard to the action of drugs. Many of the phenomena, both physiological and toxicological, that follow the exhibition of the continued, do not follow that of the single dose. And, what is in fact a corollary from this, many therapeutical results may be obtained by the continued that cannot be got from the single dose. It is also to be remarked that, although few or no practitioners write as if they were aware of the important difference here referred to, yet the larger number of observations evidently are founded on the action of the continued dose. Physiologists, on the contrary, seem to have experimented oftenest with the single dose." The continued dose means keeping the blood continuously charged with a medicine by a succession of single doses. The single dose is an appropriate quantity given once or oftener, without keeping it continuously in the blood. The therapeutical value of these doses and the physiological difference between them are of great importance.

Let us look at some illustrations of this difference and value.

Ammonia and its salts "readily enter the blood, and must to some extent increase its alkaline reaction; but from their volatility and high diffusive power they are rapidly eliminated, and hence their action on the blood and the organs of the body is a very transient one." The elimination of a single dose of carbonate of ammonia is practically completed in an hour or two after it is administered. Its physiological action is correctly stated by the United States Dispensatory to be "stimulant, diaphoretic, antispasmodic, powerfully antacid, and in large doses emetic." In consequence of this action, it is largely used in depressed conditions of the vital powers. This is the well-known action of a single dose or of a few doses given near together, after which the system is freed by elimination from the drug. No change is produced in the quality of the blood. If a continued dose of ammonia is given, that is, if it is given so often, say every hour for several days, that the blood is continuously charged with it, a very different set of phenomena from those just described appear. "When ammonia or its carbonate is administered"—in this way—"for some time to animals or man, the effect is to modify the blood-corpuscles; they become easily soluble, crenate at the edge, many-sided, colorless, transparent, collapsed, and loosely agglomerated, but not in rolls; and the blood when drawn, or after death, is absolutely fluid or loosely coagulated." These phenomena were observed by Dr. B. W. Richardson, of London. They closely resemble the changes in the blood which occur in patients suffering from typhoid and typhus fevers. Hence it appears that the single dose of ammonia produces rapid and effectual stimulation of the heart, while the continued dose of the same article alters the quality of the blood, and notably of the blood corpuscles. The single dose exerts a therapeutic, the continued dose a toxic action on the economy. It is unnecessary in this presence to dwell upon the obvious therapeutic inferences that follow from these data, at least so far as ammonia is concerned.

Gallic acid is another illustration of the difference between the single and the continued dose. This acid is rapidly eliminated. Physiologists tell us that, in a couple of hours after it has been swallowed, it has practically left the system, by way of the kidneys, to such an extent that it exerts no appreciable action upon the blood after that length of time. Gallic acid has a well-deserved reputation for controlling certain forms of hæmorrhage. Suppose it is given in single doses of ten grains, more or less, three times a day, which I apprehend is the usual method of administration, the blood will be subjected to the restraining action of the acid only about six hours out of the twenty-four; not long enough to hold steadily in check a hæmorrhagic disposition. Suppose, now, that instead of the single, the continued dose is administered, by which the ratio of elimination to absorption is constantly regarded, and the blood kept continuously charged with gallic acid; the result will be a continuous action upon the blood, not an intermittent one. It is needless to point out the fact that continuity of action is very sure to give rise to phenomena that will not follow intermittence.

No drug exhibits in a more striking light both the physiological and the therapeutical differences between single and continued doses, than alcohol. The partial, confused, and incomplete recognition of these differences by various observers and experimenters, who have examined and described the physiological action of alcohol, goes a great way toward explaining the various and often discordant results at which they have arrived. We learn from the experiments of Messrs. Lallemand, Perrin, and Duroy, as well as from those of Drs. Anstie, Parkes, Smith, Binz, and others, that the disappearance of a single dose of alcohol from the system, either by elimination from it or combustion in it, or by both processes, practically takes place in about six or eight hours after its ingestion. Traces of alcohol may be found in the blood and in the excreta for a much longer period than this; but so much of it leaves the system within eight hours that what remains of any single dose beyond this length of time has no real physiological value. A person who takes a dose of alcohol, in the shape of wine or other alcoholic liquid, once in each twenty-four hours, subjects his organism to the action of alcohol about one third of that time, and leaves it free from that action about two thirds of the same period. A person who takes what is known in non-scientific language as an "eye-opener" in the morning, wine with his dinner or lunch, a digester in the afternoon, and a "night-cap" on retiring, takes the continued dose of alcohol. His blood is continuously charged with alcohol to a greater or less degree. There are phthisical patients who imitate this method of ingesting alcohol, and take a daily continued dose of it, keeping their blood charged with it more than two-thirds of the time.

Alcohol taken in a single daily dose, by which the blood is practically free from it more than two-thirds of the time, and alcohol taken in a daily continued dose, by which the blood is practically charged with it more than two-thirds of the time, are substantially different drugs, which produce different physiological phenomena and are or should be employed for different therapeutical ends. This is not the time nor does it fall within the scope of this paper to describe these differences in detail. It is sufficient for my purpose to indicate their existence as illustrations of the single and the continued dose.

The bromide of potassium affords another and most pertinent illustration of the different physiological and therapeutical action which the single and the continued dose of an article may produce. I pointed out these differences in a comparatively recent monograph on the physiological and therapeutical action of the bromide of potassium, and will not repeat them here. Illustrations of single and continued doses, and of the therapeutical importance of recognizing them as factors in the treatment of disease, might be multiplied indefinitely; but enough has been said to call your attention to them and to emphasize their importance. It was impossible to recognize and use them as separate therapeutic factors till physiological observation and experiment had discovered the time and method of the absorption and elimination of drugs, and the ratio of the former to the latter; nor can the practitioner apply them clinically till he knows, at least with approximate accuracy, the way every article he uses gets into and out of the system, the length of time it remains in the system, and its behavior while there.

The administration of medicines to the sick, without regard to the different and often opposite results, physiological or therapeutical, that follow the single and the continued dose, is both unsatisfactory and unscientific. It is unsatisfactory because it fails to secure the legitimate action of medicinal agents. It is unscientific, because it ignores some of the most important physiological conditions upon which scientific therapeutics rest. The time has come for the clinician to recognize and use these and other phenomena of the *modus operandi* of drugs which the physiologist has discovered and whose accuracy he has demonstrated.

Secondly, the *frequent dose* is the giving of a medicine so as to impart to the organism some one or more of its actions, whether primary or secondary, with great rapidity. It is hitting blow after blow in quick succession, upon some organ which it is desirable to affect, in accordance with evident indications, with rapidity and power. It is usually, perhaps always, some action of a drug, manifested soon after its absorption, which it is desirable to obtain and which can be obtained by the frequent dose. Obviously the administration of the frequent dose is limited by the physiological behavior of the system under its influence. After a certain period the frequent dose is equivalent to a full single dose or to a toxic one.

The action of opium almost immediately after absorption illustrates the frequent dose. One of the earliest physiological actions of opium after its ingestion, rarely after subcutaneous injection, is stimulation of the nervous system, and of the circulation. This is fully recognized by obstetricians, who advise its exhibition as one means of controlling *post-partum* hæmorrhage. Stimulation is a primary effect of opium that soon passes over, the length of time varying with the quantity given and with the idiosyncrasies of patients, into an opposite condition. The administration of an appropriate quantity of opium every five, ten, or fifteen minutes, that is, the frequent dose of it, will prolong and enhance its primary stimulant action. How desirable it sometimes is to prolong the primary stimulating action of this invaluable agent, I need not remind those who hear me.

The physiological action of aconite upon the human economy illustrates the same principle. Fleming's admirable observations upon aconite have taught us the powerful sedative influence that five drops of the tincture of the root exert upon the system. If, instead of giving five drops in a single dose, half a drop is given every half-hour ten times, or one drop every hour five times, a different physiological and consequently a different therapeutical result is attained from that of the single dose of five drops. In this case a less depressing sedative action is obtained by the frequent than by the single dose.

I will not weary you by these illustrations. I am sure your own observation at the bedside will add to these other and more apposite ones. The object of this paper will be attained if it succeeds in bringing clearly before you the great therapeutical power that results from the physiological adaptation of doses to the processes of absorption and elimination, and especially if it succeeds in calling your attention to the power of the continued dose.

2.—*The Action of Opium in Syphilis.* By Johann David Schoepff, Surgeon of the Anspach-Bayreuth Troops in America. Translated by James R. Chadwick, M. D., of Boston. [Archives of Dermatology, July, 1875.]

[This letter was one of three addressed to Prof. Delius, and published by him in the form of a pamphlet in Erlangen, 1781. So far as I can learn, they are unknown in this country. The observations recorded seem to have been thorough, and to be of considerable medico-historical interest, even if more recent investigations have failed to corroborate them. The author was a man of note, and subsequently rose to considerable eminence in Germany. On the termination of our Revolutionary War he traveled through some of the Middle and Southern States, and published in German an extensive account of his experiences, in two volumes.—Translator.]

The extraordinary action of opium in curing venereal diseases seems to be the most important matter in the domain of medicine, about which I can at present write from this place. This fact, which, like many others, was discovered by mere chance, has now been tested by many experiments during more than a year, and has been almost universally corroborated.

A young man of good standing, in England, had, for some time, been greatly reduced by a most virulent attack of this pest, in the shape of obstinate ulcers. He had sought, in vain, for relief, from many of the most renowned physicians, and had unavailingly gone through the whole category of ordinary remedies. He had already taken a great amount of mercury in its different forms, and in accordance with the various methods of administration, but invariably without the slightest alleviation. Peruvian bark, mineral waters, milk, abode and exercise in the country—in short, whatever offered the least promise of relief, in his desperate condition, was tried without the slightest benefit.

Incessant pain, and, above all, bitter remorse, seemed to consume what little strength remained to him, and to hasten his steps toward the grave. They likewise robbed him of his sleep, the sole friend of the miserable. Under these circumstances opium was administered to him, more from pity than from the expectation of any other benefit. He began by taking a grain at a time, and gradually increased the amount. The refreshing effect of the sleep thus procured was a sufficient incentive to him to continue the use of this drug, and to increase the doses little by little. The improved appearance of his ulcers, the absence of pain, and the diminution of the other symptoms, soon, however, convinced him that the action of this remedy was more general than had been supposed by those who had first suggested its employment, and who now witnessed the result with astonishment. Nothing more was needed to recommend its further administration, and, after a short time, the patient had the inexpressible pleasure of seeing himself saved from the jaws of death. This is a truthful story, which must needs arouse the interest of every philanthropic physician.

There was a greater number than usual of venereal patients in one of the royal hospitals last winter under the charge of Mr. Grant, and the majority of these were afflicted with very obstinate foul ulcers, which did not yield to any of the common mercurial remedies. Dr. Nooth, superintendent-general of all his majesty's hospitals in North America (whose profound erudition, extensive experience, and Hippocratic sagacity raise him to the foremost rank of practitioners, and make him one whom I take pride in calling my friend), had for a long time entertained the opinion that the common way of treating venereal ulcers was, in most cases, erroneous; that the patient's strength was likely to be sapped by the internal administration of quicksilver; that the healing of the ulcers was retarded; that a more rapid recovery ordinarily resulted, if the venereal poison on the surface of the ulcers was destroyed by caustics, for which purpose the solid nitrate of silver was the best adapted; and, finally, that more certainty of a permanent cure could be had, if the mercurials were not employed until after the ulcers had been made to heal. This opinion, which was based upon antecedent experience, was newly corroborated by the ineffectual attempts made to cure, by means of quicksilver, the numerous cases of venereal ulcers, to which I have just alluded.

As Dr. Nooth was personally acquainted with the young man who owed his wonderful recovery to the use of opium, and was, moreover, convinced of the truth of his narrative, he ordered that a trial of opium should be made upon the patients in the hospital, before any other treatment was employed.

With this end in view, cases were selected, which were as nearly alike as possible, and quicksilver was given to one series, while opium was given to the other. One grain of the drug was administered at the outset, and the dose increased to five, six, eight, or more, grains a day. The patients felt unusually well under this course of treatment. No unnatural sleep was produced, but a sort of restfulness and freedom from all unpleasant sensations led the patients to assert that they felt better after taking these remedies than ever before, although they did not know what had been given them, and consequently had not had their imaginations aroused. The decided change for the better, which became evident after a few days, from the abatement of the hard and inflamed edges, the improvement in the character of the discharge, and the generally healthy appearance of the ulcers, fully confirmed the statements of the patients.

In those, on the contrary, who were treated with mercurials, no progress had been made during the same periods; the rapid improvement of their comrades was, however, so strikingly manifest to them that they soon begged for the same pill. The use of opium was therefore persisted in, and even extended, where such a course appeared to be indicated, and the physicians soon had the satisfaction of seeing all, to whom it was administered, freed from their ulcers and all other symptoms in a shorter time than they had thought possible.

One remarkable fact about this remedy is that no disturbance of the bowels is produced, the patients having as usual their regular daily evacuations, not excepting those who are taking ten to fifteen grains a day: if any constipative effect is observed, a very small dose of salts is always sufficient to reëstablish the customary regularity.

From the beginning I have been an eye-witness of the majority of the experiments made in the royal hospitals, and of their happy results. Records have been kept of the various cases, which will, I hope, soon be made public. Since that time I have been no less fortunate in all the cases where an opportunity has presented of testing this action of opium in our corps. The stricter supervision over our men renders the venereal disease rarer among them than in the rest of the army, although some injure themselves by concealment, owing to a dread of the penalty. A musketeer of Von Siebold's regiment was brought to the hospital last September on account of a clap, which he had sought to hide; he was found to have paraphimosis, which had resulted in gangrene. When first examined after his arrival from the camp, the prepuce fell off spontaneously, as did a portion of the glans, almost half of the member was completely gangrenous, and the rest still greatly inflamed. The stench was intolerable; the patient feverish and very weak. He had already been under my care for a peculiar swelling and an uncomfortable sensation in the right hypochondriac region, brought on by lifting a heavy load; this had been slowly improving, but was not altogether relieved. In his present condition my first idea was to prescribe Peruvian bark, both internally and externally, in order to arrest the progress of the gangrene and to hasten the separation of the slough. The recently-discovered favorable action of opium in gangrene and my own experience of its use in venereal cases induced me, however, to give it a trial, and with all the more confidence, because in this instance one of these conditions had resulted from the other. Poultices sprinkled with oil and laudanum were consequently applied to the affected part, and a grain of opium was administered four times a day. The inflammation, whic hhad not subsided, and the tension in the posterior part of the organ, had been extremely painful before his arrival. The pain was, nevertheless, quickly alleviated, so that he passed the very first night undisturbed, and had a regular movement of the bowels the next morning; on the third day the inflammation had greatly abated and much of the slough come away; on the fifth or sixth, the inflammation was entirely gone and the remainder of his penis looked perfectly clean as though it would heal rapidly. The poultices were omitted, and the organ dressed first with dry compresses, and later with simple balsamic lotions; the opium was, however, continued internally until the recovery was perfect a few days after, without the supervention of any symptoms either venereal or of other nature. I cannot determine just how far this experience may be regarded as convincing, for, under other systems of treatment, gangrene of the male genital organ, due to phimosis, very seldom extends farther than the antecedent inflammation and constriction of the prepuce. Whether the result was the work of Nature, or of the remedies employed, is undetermined, but it is at all events certain that, if other drugs can benefit such a case, the same effect can also be produced by opium.

I could extract from my record-book many other instances in which chancre and venereal ulcers on various parts of the body have been entirely cured by this treatment, were such a course not too diffuse for the limits of a letter. I can, however, assure you, that not one of the venereal patients which have been under my charge, during the past ten months, has taken even a grain of mercury, and I still have no reason for substituting the latter for opium. That the same has been the experience in the royal hospital, I can testify, both as an eye-witness and from the statements of those who are connected with it, and who are more and more pleased with the action of opium, and employ it more extensively. The case in which its advantages were first recognized gave rise at the outset to the supposition that benefit was chiefly to be expected in ulcers, but numerous recent experiments have since taught us that other venereal symptoms may be quite as surely relieved by opium. Only a few days ago I saw some fig-warts[1] in one of our grenadiers disappear within a week after opium was administered. In the hospital at Vauxhall, where, along with our patients, the women of the armies are admitted, half of whom may always be placed in the category of loose women, I have had daily opportunities of seeing such recover under the influence of opium from every variety of manifestations.

Whether the power, which opium possesses of healing venereal diseases, can be ascribed to its tranquillizing, antispasmodic qualities, and to that of diminishing the sensibility of the nerves, or whether (as is probable) it is, in addition, a direct antidote to the venereal poison, I do not venture to determine, until more extensive experiments yield a decided answer. The action of the venereal poison, in its early and later manifestations, is always corrosive; pain, redness, swelling, inflammation, with their sequelæ, are the most evident proofs of this peculiarity, and make it easy to understand the efficacy of the poppy-juice in one class of cases. In other classes, and especially where a complete eradication of the poison, when it has been acquired by contagion, is sought by means of opium, I can, as yet, only state that those, who, during the past twelve months, have been easily, surely, and speedily cured of tedious and previously intractable lesions by its use, have good reason for expressing the opinion and hope that this drug possesses more than an indirect action upon the seeds of these affections. This belief is all the more justifiable, because during this period we have met with no instance of a relapse among those who have been treated on this plan. Moreover, if it is true—as is asserted by nearly all travelers, and cited as remarkable, even by Voltaire in his "Candide"—that syphilis is but little, if at all, known among the Turks, Persians, and other Oriental nations, should we not, supported by our experiments, ascribe this fortunate freedom from so common and distressing a scourge of Christian Europe to the wide-spread and constant use of opium, not being unmindful, however, of their daily resort to baths?

3.—*The Resin of Aloes.* By William Craig, M. D., F. R. S. E., etc. [Edinburgh Medical Journal, June, 1875.]

Dr. Craig sums up as follows his report of an interesting series of researches into the action of "changed aloin" and the resin of aloes:

I have thus far established the point that the opinion of Dr. Tilden, regarding the activity of the resin of aloes, is altogether untenable. It is contradicted by the experience of the observers just named, and my experiments both on man and on the lower animals are conclusive on the point.

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[1] Condylomata.

In speaking of the action of the resin of aloes, I must not omit to mention that to this resin is generally ascribed the griping property of aloes. I believe that aloes does not gripe nearly so much as writers on materia medica would lead us to believe. When it does gripe it is probably on account of some impurity in the drug, and certainly it cannot by any possibility be due to the resin. It was with the view of determining this question that the experiments of Dr. Farre and Dr. Garrod were performed, and they both came to the same conclusion, that the resin was not the cause of the griping. My experience fully coincides with theirs. I gave it to a large number of patients, and in very different circumstances, in doses varying from four to twelve grains, and in no single instance did it produce griping. It thus appears that the resin is not only inert, but is also a very harmless substance.

These experiments are also interesting as bearing on the chemical constitution of the resin of aloes. The results are entirely at variance with the generally received opinion that the *resin* is "modified aloin." I have clearly demonstrated that "changed aloin," which very much resembles *resin* in appearance, is an active aperient, possessing all the activity of aloin itself, whereas the *true resin* is altogether inert.

The following may be regarded as conclusions fairly deducible from the foregoing experiments:

1. That aloin may, by exposure to the air, undergo considerable chemical change, without losing its physiological action as an active aperient.
2. That the *resin* of aloes, when thoroughly exhausted of aloin, possesses no purgative properties, and therefore cannot be the active principle of aloes.
3. That the resin of aloes is not the cause of the griping which sometimes follows the administration of the drug.
4. That aloin is an active aperient, and is in all likelihood *the active* principle of aloes.

When these experiments are viewed in connection with the researches of numerous experimenters in regard to the activity of aloin, we are forced to the conclusion that *aloin is the only active principle contained in aloes*, and is sufficient to account for all the purgative properties of that medicine. And that being the case, I cannot conclude this paper without expressing a regret that in the "Addendum to the British Pharmacopœia of 1867," published in 1874, no mention is made of aloin. It ought to find a place among the medicines recognized in the British Pharmacopœia. It possesses the following advantages over the crude drug:

1. Being uniform in strength, its dose can be more accurately determined.
2. Its dose being half a grain to one grain, it can easily be introduced into tonic pills without making such pills too large.
3. By using the active principle, we get rid of all impurities which are so apt to cause griping.

Its uniformity in strength, the smallness of its dose, and the certainty of its action, should commend it to the favorable consideration of all medical practitioners.

I have found the following an excellent pill for the constipation so common in females of a sedentary habit. I believe it possesses some advantages over the pil. aloes et ferri of the B. P.:

℞. Aloin., gr. ss.
Ferri sulph. exsic., gr. jss.
Extract. nucis vomicæ, gr. ss.
Extract. belladonnæ, gr. ss.
Fiat pil.—One or two pills daily.

THEORY AND PRACTICE.

1.—*Scarlatina Anasarca and its Treatment.* By J. P. Bramwell, M. D., L. R. C. S., Visiting Physician to the County and City of Perth Infirmary. [Edinburgh Medical Journal, July, 1875.]

The following observations are based chiefly on the last two epidemics of scarlatina which occurred in Perth, the one in 1868, and the other in 1874. During these epidemics I have treated thirty-two cases of scarlatinal dropsy. It is a trite fact that a certain number of scarlatina patients are attacked in the stage of convalescence with dropsical symptoms. It will be found, however, as observed by Hebra, that the proportion varies in different epidemics. I found it to do so from 16 to 25 per cent. These variations apparently depend, in some measure at least, upon the character of the season; a very cold one seeming to favor the occurrence of the sequela in question. We have observed, also, that when scarlatinal dropsy was of frequent occurrence, other forms of morbus Brightii were unusually common, notably those of an acute character. Some of these, doubtless, were cases of latent scarlatinal dropsy, in which the original disease had escaped observation; others, examples of idiopathic desquamative nephritis. We are, however, far from believing that all cases of scarlatinal dropsy depend upon exposure, there being no proof of this whatever, but quite the contrary; most of our patients subsequently so attacked having been carefully guarded in-doors till the dropsy came; we must, therefore, look for its causation in some other direction.

If the previous history of such dropsical patients be inquired into, it will be found that, with few exceptions, the original disease (scarlatina) occurred in a mild form, the eruption not being copious. Such being the case, it is highly probable that the poison was not eliminated by the skin, its normal channel, and, in finding another way of exit by the kidneys, irritates these organs, impairs their power of secretion, and leads to the sequela in question.

Scarlatinal dropsy generally appears between the tenth and twentieth day after deflorescence of the erythema. In some it is ushered in by pyrexial symptoms of more or less severity. As a rule, however, it creeps on in an insidious manner, the first thing that has excited alarm being the dropsical condition of the patient. The urine is lessened in quantity, ranging from three to twenty ounces in the twenty-four hours, and is of a smoky color, with a disturbed, muddy, mucous cloud. It deposits sediments which, on microscopic examination, prove to be blood-corpuscles, hollow tube-casts, disintegrated epithelium, and urates, and, in some rare cases, the principal deposit is ammoniaco-magnesian phosphates. In six cases the urine was found to be acid, and contained the former deposits: in one case only were the ammoniaco-magnesian phosphate found. The fact that in some of these six cases uræmic symptoms were shown does not seem to favor Frerich's theory of uræmia-poisoning by the transformation of urea into ammonia. If such were the case, we would naturally expect an alkaline condition of urine more frequently associated with uræmia, which in point of fact is quite an exceptional occurrence in the malady.

It is almost superfluous to add that the urine is always more or less albuminous. In some cases, however, both at their commencement and decline, boiling such acid urine will give no deposit or cloud, while the cold nitric-acid test will give a well-marked deposit of albumen. This fact should be duly considered before pronouncing dropsical patients entirely free from danger.

The specific gravity is seldom below, generally above, the normal (1025–1030), thus entirely differing from the albuminous urine of chronic renal disease.

If this dropsical condition remains unchanged, a formidable train of symptoms sooner or later begin to show themselves, and that not always, as Sir Robert Christison has long ago pointed out, in proportion to the quantity of urea excreted. These symptoms are cough, dyspnœa, vomiting (sometimes of grumous blood), dry retching, headache, loss of sight, and convulsions; all which symptoms owe their origin to one common cause—the poisoned condition of the blood by the retained urea. The bowels are generally much constipated, and the pulse slow and unrhythmical. If prompt means are not now employed, violent eclampsia generally ensues.

Scarlatinal dropsy is often a fatal malady. From the registrar's returns for Perth, I learn that of every 100 fatal cases of scarlatina, about twenty succumbed to this complication and its consequences. Of the thirty-two cases treated by me, one-third never showed any local complications or symptoms of uræmia-poisoning. The greater proportion, however, showed both, and some six or seven had convulsive paroxysms.

Treatment.—When the case was one of moderate severity, and uræmic symptoms not a conspicuous feature, sharp purgation with drastics, such as the comp. jalap or comp. scammony-powders, answered very well. It was found, however, that a very large dose was required to produce the desired effect, ʒ ss. or even ℈ ij of comp. jalap being often required for a child five or six years old. This purgation was alternated by vapor-baths, and at a later period, when febrile action was diminished, inf. of digitalis with acet. of potash was administered with good results. It will be found, however, that dropsical symptoms in the majority of such cases will persist in spite of all these means, and go on from bad to worse till alarming pulmonary complications show themselves, or convulsions supervene. What, now, is to be our line of procedure? We venture to affirm that at this juncture abstraction of blood, either general or local—certainly general when there are convulsions—will act in the most beneficial manner, and convert in a short time an apparently hopeless case into a remediable one. In order to accomplish this, however, we must not hesitate to take blood freely, as ten ounces from the arm of a boy ten years of age, or four ounces by cupping over the loins in a child four or five years of age. Neither must we be deterred from this by the supposed anæmic condition which some writers on renal disorders have ascribed to such patients. The truth is, they are not anæmic at all, but are suffering from an acute disorder associated with a very different condition of blood from that existing in chronic renal disorders, and the rapidity with which they recover after sharp antiphlogistic treatment sufficiently shows this. Depletion acts like a charm in convulsions from acute uræmia, and we have seen a free diuresis set up in forty-eight hours after its employment, unaided by any other remedies.

The following is Dr. Graves's opinion of this practice: "By opening a vein in the arm and abstracting a quantity of blood proportionate to the age and strength of patient, you remove the inflammatory state of the constitution, and arrest at once the anasarca and the pectoral symptoms." Generally speaking, cases of anasarca after scarlatina stand antiphlogistic treatment well.

I am interested also to observe that Trousseau, whose leanings in general are in an opposite direction from bloodletting, makes a special exception in favor of scarlatinal dropsy, thus showing his high powers of discrimination and accuracy as to facts.

It will be found that it is in vain to treat the various complications that occur in scarlatinal dropsy—such as pneumonia, cerebral congestion, hæmatemesis, etc.—as if they were idiopathic affections, seeing each and all of them depend upon a poisoned condition of blood from impaired kidney-function. Let this latter condition only be removed by depletion, and the other disorders which depend upon it soon disappear without any special treatment whatever. There are pneumonias *and* pneumonias, there are cerebral derangements *and* cerebral derangements, and we must differentiate the treatment accordingly.

Medicine has fashions as well as other things, and bloodletting, at one time so frequently used and often abused, is now banished altogether. Such great swings of the pendulum, however, generally override the mark; it would be wiser to be a little more discriminating. One is forcibly reminded, by all this, of a just observation by the late Sir Benjamin Brodie, to the effect that "the progress of medicine is not quite so great as it seems to be, because, while introducing new remedies, we are losing sight of and discarding others old and tried."

Let me further observe that the adaptability of this remedy is not confined to some exceptionally sthenic epidemics, but has suited well in my hands in the same disorder occurring and recurring at considerable intervals of time. By a fair induction, bloodletting will be found an admirable remedy in all forms of acute uræmia, as uræmic puerperal eclampsia, acute desquamative nephritis, etc.

We have treated thirty-two cases of acute scarlatinal dropsy more or less after this fashion, with only two deaths. One of the fatal cases was seen too late, when no depletion could be thought of. This patient died of acute pulmonary œdema. From the severity of not a few of these cases, and the inadequacy of other means in a considerable proportion of them, there is no doubt in my mind but that several more of them would have terminated fatally had bloodletting not been boldly employed. Let me venture, then, to press this valuable old remedy in this disorder upon the notice of my professional brethren who may not have tried it, especially on the rising generation of physicians, who have been educated, perhaps, too exclusively in an expectant or building-up treatment of all inflammations indiscriminately.

The following cases will illustrate the treatment and the severity of the symptoms in some of the patients:

Case I.—A boy, aged eight years, about the fourteenth day of recovery from a mild attack of scarlatina, was seized with dropsical symptoms. He was purged by comp. jalap-powder, and ordered calomel $\frac{1}{6}$ grain, tinct. digit. ♏iii., every six hours. His breathing soon became seriously impeded, and it was found that he was suffering from œdema of the glottis. This was subdued by free swabbing with a strong solution of nitrate of silver and insufflation of alum-powder. Urine albuminous, but increasing in quantity. Symptoms of uræmia now supervened, namely, slow pulse, pain in the head, and dry retching. Next day came violent convulsions, at first at intervals, later all but constant. His pulse was pausing every third or fourth beat, his respirations were very hurried and labored, and, at intervals, a gush of grumous matter like coffee-grounds, composed of altered blood, was ejected through his nostrils. About eight ounces of blood were taken from his arm, and then chloroform was administered as often as a convulsion-fit threatened. On turning him on his side, he became quiet and slept for several hours. A convulsion-fit again threatening, chloroform was readministered, after which he slept continuously till next morning, when he awoke to consciousness. No more convulsions or uræmic symptoms recurred. He soon passed urine freely, the secretion being aided by bitartrate of potash and digitalis, and made a good recovery.

I may mention that this patient belonged to an industrial school in the neighborhood, and was in one of our infirmary wards with six other boys from the same institution. By a strange coincidence, two of the other boys became dropsical and convulsed, one being amaurotic, and all but blind for four days, from retinal poisoning. All were bled at the arm, and all recovered.

Case II.—A boy, aged eleven years, had a mild attack of scarlatina. Ten days after, the symptoms began to abate; he became slowly dropsical without any marked febrile reaction; his urine was albuminous, and contained tube-casts and renal epithelium in abundance, quantity three to four ounces in twenty-four hours. He was purged freely, had warm baths, counter-irritation applied to the loins, and diuretics, all to no purpose. His anasarca increased, and the quantity of his urine decreased slightly. Symptoms of uræmia beginning to appear, I bled him to ten ounces. Immediate relief followed, and in forty-eight hours he was passing twenty to thirty ounces of urine in the twenty-four hours. Although this urine continued albuminous, it steadily increased in quantity. He was kept strictly to bed, and had a warm bath every third night for two weeks, at the end of which time his urine was normal in quantity and quality.

Case III.—A boy, aged six years, became highly anasarcous after an attack of scarlatina; his urine was reduced to two and three ounces daily. Ordered liq. ammon. acet., vin. antimon., and warm baths after his bowels had been opened by comp. scammon. powder. No improvement followed. Infusion of digitalis and acetate of potash were now substituted, but neither skin nor kidneys could be got to act. Next day dropsy was still increasing, face very puffy, scrotum and penis much swollen, drowsy, and complained of his head; symptoms of pulmonary congestion also appeared. Four leeches were now applied to the loins, and a very copious flow of blood ensued; this was aided by hot poultices. The bleeding was difficult to control, and alarmed his parents, but no bad consequences followed. On the contrary, he began next day to pass urine in considerable quantity. A steady diuresis now set in, and the boy made a good recovery.

Case IV.—A little boy, five years of age, was admitted into one of our infirmary wards with all the symptoms of scarlatinal dropsy. Three members of his family had scarlatina in a latent form, and all became dropsical. The little fellow referred to was quite water-logged, and of prodigious weight, considering his age and height. He was purged freely, and had calomel with digitalis, and mustard-poultices applied to his loins, but all to no purpose. He was then cupped to four ounces of blood over the loins. In twenty-four hours a free diuresis set in, and soon he began to pass urine in enormous quantities, and made a steady and complete recovery.

I could adduce numerous other cases of this kind where the beneficial effects of depletion were sufficiently apparent. To do so, however, would extend my paper beyond due limits. I shall, therefore, conclude with the notes of another case which presented certain exceptionally interesting particulars.

Case V.—A school-master, into whose school scarlatina had entered, feeling out of sorts, called in medical aid. I found his face puffy, pulse somewhat irregular and slow, urine reduced in quantity, highly albuminous, and having a copious sediment of renal epithelium. He was ordered to keep his bed and use comp. jalap-powders every third day, with vapor-baths between. These remedies, however, did not relieve him, neither did digitalis and potash. In addition to his other symptoms, congestion of both lungs now set in; his sight became affected, mind somewhat confused. At three o'clock in the morning he had a convulsion. On arriving, I found him coming out of it, but still confused. I bled him from the arm to ten ounces. Next day, I found him quite collected. The extracted blood was buffy and firm. Next day, secretion of urine was much increased, head-symptoms gone, and chest-symptoms much relieved.

Three days after the bleeding he had a severe rigor, followed by delirium and phlegmonous inflammation of his arm, which ran on to the formation of pus, and required several free incisions for its relief. The constitutional disturbance was very high, and his life apparently in danger. His urine was exceedingly bloody for several days during this inflammatory attack. He was put on liq. ergotæ with beneficial results. In two and a half months from the date of his first ailing he was able to resume his duties, the renal symptoms having completely disappeared.

Note.—I am not certain whether this case was one of dropsy following latent scarlatina, or acute desquamative nephritis; but in either case it shows that bloodletting is the best remedy when acute uræmic symptoms supervene.

Translations.

Massage.—In a paper read before the "Medicinsk Selskab," of Copenhagen, Dr. E. A. Gottlieb has given a very succinct account of the manner of applying massage and the effect which it produces.

A very accurate appreciation of the disease and of the slightest differences in the consistence of the tissues, as well as of their finer anatomical structure, is of the utmost importance for the success of this method of treatment. Though this system has received its highest development at the hands of Scandinavian physicians, the French technical terms are usually employed. The various manipulations may be divided into *effleurage, massage à friction, pétrisage, and tapotement.*

Massage à friction, the chief method, is a more or less deep rubbing, most frequently in the direction of the long axis of the limb or of the course of the vessels, essentially centripetal, but also deviating from this direction, transversal to the long axis.

Effleurage is a more or less light stroking with the flat hand, always in the above directions.

Pétrisage is a kneading, essentially an exaggeration of massage à friction, so as to act on deeper and thicker strata, like muscles.

Tapotement is a beating, which may be performed either with the clinched hand (tapotement à main fermée), with the flat hand (tapotement à main plate), or with the hollow of the hand (tapotement (à main creusée). Of these subdivisions, the first is the most important; the other two cause, for the most part, a congestion of the skin, and thus produce a derivative effect. Tapotement à main fermée may, according to the manner in which it is performed, produce either a tetanizing or a more contundent effect. In the first case it acts more like an induction-current, and may thus stimulate paretic muscles and nerves; while, in case of over-incited nerves, the irritability may be diminished by an increased irritation. Used in cases of infiltration, tapotement may also serve to promote the absorption of the infiltration, thus serving as an introduction to a spinal massage.

The other three methods are very similar in their physiological action, and may be regarded as modifications of special massage or massage à friction. As this last method is the one chiefly used, it will be well to study its effects on a given tissue in a normal as well as in a pathological condition. Taking, for example, any normal muscle, it will be found that a deep friction will exert a pressure on all its parts, on the transuded plasma, the lymphatics, arteries, and veins. Since the rapidity of the lymphatic circulation, and the resorption of the transuded nutritive fluids, are due, for the greater part, to a *vis a tergo* which is exerted partly by the blood-pressure in the capillaries and partly by the muscular movements, it is evident that this *vis a tergo* may be increased in a high degree by an externally-applied pressure, which, in consequence of being intermittent, does not hinder the circulation in the blood-vessels. The result is that the resorption by the lymphatics is considerably increased. In the normal and completely passive condition of a tissue a much slighter resorption of the nutritive fluids takes place through the venous capillaries, for the reason that the blood-pressure is here greater than the pressure in the combined lymphatic vessels, notwithstanding that certain substances are mainly taken up by the veins. If, on the contrary, the pressure should become greater in the interstices of the tissue than in the blood-capillaries, as may readily be the case from such manipulations, a considerable resorption may also be made to take place through the venous capillaries. This is the purely mechanical effect of massage. But there are symptoms manifested which the above does not explain, namely, the active congestion, which is always observed, the reddening of the skin, and the swelling and increased temperature of the manipulated parts. The increase in diameter of the lumen of the vessel, on which these symptoms depend, may be most readily explained by the action of the vaso-motor nerves. The anatomical result of all this is, therefore, in this simple case, active congestion, promotion of the circulation, and resorption of the transudations. The clinical result is an improved nourishment, or, more correctly, an increase of the nutrition beyond the normal point, which will manifest itself by an increase in the size of the muscle. Applied to an atrophic muscle it may raise it to a normal condition.

Taking for the second example an acute inflammatory condition, and considering first an acute myosis as a type, we have the same factors which are present in any acute inflammation, active and especially passive hyperæmia, and increased transudation of plasma, with emigration of white blood-corpuscles from the small veins. Whatever may have been the original irritation which produced the inflammation, it is evident that the disturbance of the circulation and stasis play, if not the most important, at least a very important *rôle*, since the increased transudation, and partly also the emigration of the white corpuscles, may be chiefly explained by it. It constantly assists, by the pressure thus exerted on the veins, in furnishing a new source of transudation and emigration. The chief effect of massage is exerted on the disturbance of the circulation, and here it is a very efficient remedy. The manner in which the exuded plasma can be resorbed has already been shown. The white blood-corpuscles may also, in the same manner, be again received into the circulation through the vessels of the tissue. When these two things have taken place, the disturbance of the circulation is removed, and thus an important aid rendered for the removal of the inflammation.

In place of an acute myositis let us take an acute serous synovitis, at a stage when there is already an exudation into the capsule. The synovial capsules have an absorptive power, for indirect communications between them and the lymphatics have been anatomically demonstrated. We have here, therefore, the same possibility of producing absorption of the exudation by pressure. The absorption thus produced is of curative importance, since it removes the tension which causes venous and lymphatic stasis, and, as a consequence, exudation.

Since this method exerts so great an influence on disturbances of the circulation, it might be expected that massage would be very useful in acute inflammations, and this is found in practice to be the case. In acute cases, where the inflammation is not too intense, it affords the best results, as in acute myositis, distortions, and the like. The amount of motion permitted to the affected articulation is of the greatest importance, for an indiscretion in this direction may completely destroy the results of the massage. In very acute forms of arthritis, massage would be contraindicated on account of the intensity of the local process, or the disposition to severe inflammation which is induced by the accompanying fever. We should, therefore, exclude from this treatment suppurative and sero-fibrinous arthritis and also sero-fibrinous, catarrhal, and pure serous synovitis, so long as these, as in febrile poly-articular rheumatism, are accompanied by considerable fever. When the disease assumes a more chronic form, or the fever disappears, massage is again indicated.

Passing to the chronic forms of inflammation, we will first consider the granulation-tissue, paying especial attention to the granular or fungous arthritis, or *tumor albus*. There is, here, tumefaction with venous and lymphatic stasis, profuse emigration of white blood-corpuscles, and new formation of capillaries. By massage, the stasis is removed, the white corpuscles and the transuded plasma are carried into the lymph-current, while the newly-formed capillaries are ruptured and undergo a retrogressive metamorphosis. In this manner, in mild cases, a rapid resolution of the granulation-tissue may be made to take place. The rupture of the capillaries is sufficiently proved by the extensive ecchymosis produced. When granulation-tissue follows its natural tendency, a portion of the emigrated white blood-corpuscles are transformed into connective-tissue cells, developing into connective-tissue fibres, while the newly-formed capillaries disappear. Cicatricial tissue is then formed, and contraction is thereby produced. This retraction takes place according to the manner in which the transformation occurs, and is very slight where massage is used. Hence its great utility in arthritis in combating the threatened rigidity. A granular arthritis, where the synovitis is primary, readily yields to this treatment, only it is necessary to watch for any possible complication with bone-affection and a tendency to pass over into suppuration. In the pannous hypertrophic synovitis, which is often developed after a lingering serous synovitis, there is tumefaction of the synovial membrane, depending essentially on the enlargement of the vessels and the increase of the cellular elements; and, at the same time, newly-formed connective-tissue proliferations have spread over a portion of the articular cartilage. So long as the case is somewhat recent, and the newly-formed cells have not had time to become organized into connective tissue, the synovial capsule may be altered by massage in precisely the same manner as was indicated in acute serous synovitis. The acceleration of the lymph-current thus produced causes a retrogressive metamorphosis of the connective-tissue prolongations from the capsule, and this is still further promoted by the pressure they receive from other movements simultaneously made.

Let us now take a typical case of a so-called chronic hydrarthrus, or chronic serous exudative synovitis, with some thickening of the capsule and a considerable constant exudation within it. When this condition has been of considerable duration, even the synovial membrane will then present the appearance of a thickened, sparsedly-vascularized connective tissue, with retraction and consecutive compression, essentially of the veins and lymphatics. Assuming that an abnormally increased exudation in the capsule may depend on a misproportion between resorption and exudation, we have a sufficient explanation of the constant exudation in the derangement of the circulation here indicated, which, at the same time, constitutes the difficulty of removing this condition. Connective tissue once organized cannot, naturally, be again brought as such into the circulation; the retraction and the derangement of the circulation dependent upon it cannot, therefore, be removed in this manner. There is, on the contrary, a possibility, by means of massage and the concomitant constant pressure of the fluids through the blood and lymph vessels, of dilating these, and thus, on the one hand, of directing and promoting the resorption, and, on the other, of counteracting by this dilatation the retraction of the connective tissue. The more firmly this is organized, and the more the synovial capsule is disposed to form an homogeneous, fibrous, parchment-like membrane, the less chance is there for a good result, and this form naturally belongs to such as require a long time for their cure. That fibrous, hyperplastic thickenings may, in the mean time, disappear, is best seen in those varieties which are diffuse and somewhat considerable, as is found in a chronic serous synovitis, especially in the pockets under the quadriceps extensor, including both the synovial membrane and perisynovial connective tissue.

With regard to the tuberous hyperplastic synovitis, with its various forms of connective-tissue thickenings in the capsule, whether they appear as very small tubera, as large fibrous lamellæ, or as papilliform excrescences, it may be said that they bear a considerable resemblance to trachoma of the conjunctiva. Just as, in trachoma, various irritants are used to produce a congestion and thereby obtain a retrogressive metamorphosis of the sclerosed tissue, massage operates in the same direction. But it is clear that in this case also it may be continued for a long time, and not always with a satisfactory result.

There are certain inflammations of the joints, such as polypanarthritis or arthritis deformans, panarthritis urica, and simple polyarthritis synovialis chronica, which depend on some constitutional or other cause beyond our control, which do not yield much to massage; but even here it is often a useful adjuvant.

Gonorrhœal arthritis has, as a rule, the character of a simple serous synovitis, but is occasionally sero-fibrinous, with a very considerable plastic infiltration of the perisynovial connective tissue. Notwithstanding its connection with the urethral affection, it often disappears very rapidly under this local treatment.

Leaving diseases of the joints, and passing to neuralgia, myositis, tenosinitis, and the like, we shall find the conditions the same. Here, again, infiltration and exudation play the chief *rôle.* They may be removed, and the more readily the more recent the condition is, and the shorter the time the newly-formed connective tissue has had to become thickened. For this reason a fresh neuritis or myositis will disappear with astonishing rapidity; while, for example, a tenosinitis or a ganglion which has existed for many years may have such thickened walls that their absorption becomes impossible.

In most of the neuroses, the marked infiltration can be removed, and with it the entire morbid condition; but, even where no infiltration or other palpable cause can be found, we have in the tapotement a good means of temporarily over-inciting the nerves, and, by means of a continued over-incitement, of finally reducing the irritability.

Various peripheral pareses, whether due to infiltration or to some other cause, such, for instance, as peripheral facial paralysis, are often made to disappear by this treatment. Certain spinal affections are also benefited by massage. In infiltrations of the skin and deeper-lying parts it affords good results, and the author has caused the infiltration accompanying psoriasis to disappear by this treatment.

After comparing the results of the treatment of certain affections by massage with those obtained by the other methods more commonly used, the author reports cases of the above mentioned diseases, with the results and mode of applying massage.—*Ugeskrift for Laeger*, 3d series, vol. xviii., Nos. 29, 30. G. R. C.

On Bronzed Skin.—In regard to this disease, which was first described by Addison in 1855, and is characterized by general anæmia, debility of muscular and nervous power, and bronzed coloration of the skin, various views still prevail. Its cause is supposed to be disease of the supra-renal capsules. While Brown-Séquard has pointed to the importance of these glands, and demonstrated their influence on the animal economy and nervous system, and thinks it probable that they may serve the purpose of transforming a substance contained in the body into pigment, other physicians, mostly practitioners, have declared themselves against this view. Verardini, in an article published in 1858, attempted to show that this disease must be classed among the cachexias, that it is traceable to various causes, and does not solely depend on an affection of the supra-renal capsules; and his views, presented in 1866, pointed to the fact that there was no connection whatsoever between bronzed skin and an affection of these bodies. His present elaborate article is based on the works of Arnold and Taruffi on the supra-renal capsules, and gives an analysis of all the cases which have been published during the last fifteen years. He arrives at the following conclusions:

1. Bronzed skin alone is often observed in tuberculosis; on the other hand, when the supra-renal capsules have been found tuberculous, and in a state of cheesy degeneration, the skin was not discolored.

2. Anæmia combined with bronzed skin is met with in many diseases, though from these symptoms we cannot establish an independent disease.

3. To these two symptoms we can add muscular and nervous debility, though no alteration will be found in the supra-renal bodies.—*La Nuova Ligur.; Centralblatt*, 20, 1875.

E. F.

Syphilis as a Cause of Phthisis.—Whether phthisis is ever caused by syphilis has long been a disputed question among physicians. Dr. N. W. Thoreson has investigated the subject very thoroughly, and his memoir obtained the prize of the Medical Society of Christiania.

The history of three hundred and eighteen syphilitic parents is given, as well as that of all their children, up to the time of publication of the memoir, which occupies the entire space (124 pp. 8vo) of the *Norsk Mag. for Laegeridenskaben* for April, 1875.

It was often found that a syphilitic mother gave birth to a healthy child, which was nursed by her, and which remained healthy; and, if the mother was not treated, the next child might have marked hereditary syphilis, or present other signs of ill-health. In several instances several healthy children were successively born of such a mother, who then gave birth to syphilitic children. Others had syphilitic children, and then gave birth to perfectly healthy ones. In no case, however, could the origin of phthisis be traced to syphilis in the parents. It was constantly found that, where the children had tubercles, there was a history of this disease in their ancestors. Of the whole number of syphilitic individuals examined, there were only sixteen who had tuberculosis. There were none among these in which the tuberculosis was not found to have existed as a family disease. In the nine tuberculous individuals who became syphilitic the course of the latter disease was very disastrous. The condition of those syphilitic individuals, twelve in number, who belonged to a tuberculous race, but who had not themselves had tubercles, was carefully followed, and, though most of them had severe syphilitic accidents, none of them had any chest-affections, and no other manifestations of tuberculosis were discovered.

The author concludes that syphilis has no causal relation whatever to tuberculosis, though the latter dyscrasia renders the prognosis of syphilis bad, just as any other depressing condition would. He promises to keep all these individuals and their offspring under observation, as far as possible, and to enlighten us further in this direction at some future day.

G. R. C.

Luxation of the Penis.—The following case is reported in the *Gaz. Méd. de Strasbourg:* A man, fifty-seven years of age, in falling from his wagon, was thrown by his horse against a tree, and the hind-wheel of the wagon passed over his abdomen. On examination, the region of the symphysis, scrotum, and penis, were very much swollen and distorted. It was difficult to find the glans, as it was reduced to a bloody pulp; the penis was flaccid, and seemed to be completely crushed. A sound introduced did not pass beyond the symphysis. On the following day the scrotum was found distended by urine, and perineal section was performed, but the canal was not found; on introducing the finger into the wound a vast cavity was discovered, extending upward to the symphysis and to the left to the inguinal region. From this latter point the urine seemed to proceed. During the days following, micturition was performed about every twelve hours; the urine was clear and inodorous. On the twelfth day an abscess developed at the level of the left anterior iliac spine, and was incised, and from this opening urine escaped in greater quantity than from the perineal wound. A fresh exploration was made on the eighteenth day, and a catheter being introduced into the inguinal wound struck against the root of the penis. The tissues were incised on a director, and at the bottom of the wound the penis was discovered intact and strongly adherent to the cellulo-fatty tissue covering the abdominal muscles. The glans had been separated from the preputial fold and had assumed a direction toward the spine of the ilium, the entire penis having left its sheath. In other respects the canal had not sustained any alteration. The patient refusing to submit to any autoplastic operation for the better isolation of the penis, treatment was confined to removing the skin and fat which surrounded it within a certain compass. The patient was again seen one year afterward; then the penis had become adherent to the skin of the abdomen almost up to the glans; the latter was mobile, and micturition could be performed in every position. Erections took place from time to time, and were not painful. This case and the one of Nélaton, in which the penis was dislocated into the scrotum, are the only two cases of this kind on record.—*Revue de la Presse Médicale.* E. F.

Kamala.—This substance, prepared by pulverizing the capsules of the *Rottlera tinctoria*, an Indian plant, is in common use by the Chinese as an anthelmintic, and has been employed for this purpose by practitioners in Germany for many years.

In the United States it is comparatively unknown, and in France attention has only recently been called to it, by M. Davaine. The most certain and easiest method of administering it is that suggested by M. du Plessis, of Geneva (*Lyon Méd.*, 22, 1875). It consists in giving it in the form of an electuary with pulp of tamarinds, in the proportion of 90 to 180 grains of kamala to one or two ounces of tamarinds, according to the age and temperament of the patient. The powder of kamala, when taken pure, imparts to the mouth and throat a disagreeable, sandy sensation, which is disguised by the agreeably acid taste of the electuary. The taste and consistence of the latter can be improved by the addition of sirup of orange or lemon juice. The entire electuary should be taken on rising in the morning, followed by breakfast as usual half an hour after. The remedy causes some eructation, but which is not disagreeable, and this is followed by several liquid stools without tenesmus. Toward noon, sometimes, in all cases toward evening, a final evacuation expels the worm or worms. The author has applied this method in more than twenty cases, always with a satisfactory result. In case of botriocephalus the cure is always radical, the worms being regularly expelled with the head. In one case in which three drachms of kamala in one and a half ounce of tamarind were administered in a vigorous patient, the expulsion of four botriocephali was accomplished. E. F.

Carcinoma from a Clinical Stand-point.—Prof. von Nussbaum, in his operative practice, extending over a period of fifteen years, has treated over one thousand cases of cancerous disease. Most of the cancerous tumors operated on were examined microscopically by Von Buhl. The views of the author can be summarized in the following propositions:

1. Cancer is a proliferation of the epithelium, which progresses rapidly, and crowds out the connective-tissue stroma, undergoes ulceration from slight causes, determines local destruction, induces severe general illness from hæmorrhages and discharges, and finally disseminates its particles throughout the whole body, and generates an identical proliferation and destruction in various organs, and thus destroys life.

2. Its causes are found in advanced age, grief and care, and when there is a disproportion between epithelium and connective tissue; warts, cicatrices, glandular swellings, etc.; and, lastly, those tissues are more especially affected which are subjected to frequent irritation, though not placed in a condition of acute inflammation. Cancer is not congenital nor contagious. At first it is a purely local disease, which only becomes a dyscrasia by the dissemination of its elements throughout the body.

3. The humoral infection must be distinguished from the dyscrasia. The former can disappear entirely, and never contraindicates the operation.

4. Recurrence of cancer is either continuous, when cancerous elements have remained, or regionary, when neighboring tissue disposed to cancerous disease has remained; or it may be a recurrence by transplantation, when cancerous particles have been disseminated by passing into the circulation through opened vessels.

5. Cancer can be cured radically by early and extensive operation.

6. Exact and extensive statistics show that patients who are operated upon live longer than those who refuse all interference.

7. In the treatment, all remedies which act on the tissues, blood, and nerves, come into consideration. Early and extensive operation ranks first. Caustics are often useful, especially ofter the cancer has been scooped out. Parenchymatous injections deserve trial.—*Med.-Chir. Centralblatt*, 20, 1875.

E. F.

Separation of the Anterior Wall of the Rectum.—Under this title Dittel describes the methodical dissection of the rectum from its connections with the urethra. For this purpose he makes a crescent-shaped incision at the external anterior circumference of the external sphincter, and from this gradually advances towards the prostate; during the dissection the urethra is guarded by the catheter, and the rectum by the finger. Dittel recommends this operation as an accessory one under the following circumstances: 1. In case of simple urethral fistulæ opening internally into the membranous portion, when other methods have proved unsuccessful. 2. In similar fistulæ of the prostatic portion. 3. In strictures whose greatest contraction is situated in the posterior part of the membranous portion, and which call for external urethrotomy. 4. In prostatic abscesses which only open into the urethra, and can be incised from the rectum. 5. In case of rectal neoplasms. —*Wien. med. Wochenschrift* and *Med.-Chir. Centralblatt.*

E. F.

Removal of Breast by Elastic Ligature.—M. Férier presented to the Société de Chirurgie a cysto-sarcoma of the breast which he had removed from a female eighty-four years of age, who was in a very enfeebled condition. The tumor, existing for twenty-four years, was of the size of the fist, movable, and separated by its weight from the adjacent parts. The operation consisted in passing a band of rubber through the base of the tumor, and afterward tightening it by clamps; the tumor during the first days assumed a reddish color, then became blue and finally fell off. The patient a few months later succumbed to an attack of erysipelas of the face. The author believes that the elastic ligature in removal of tumors is preferable in old people to every other method; and that in employing it we avoid the loss of blood which is inevitable in the cutting operation; cicatrization is more rapid than after the use of the galvano-cautery; lastly, anæsthesia is dispensed with.—*Revue de Thérap. Med. Chir.* E. F.

Alcoholic Solution of Bromine in Uterine Cancer.—Henneberg (*Centralblatt f. d. med. W.*) reports six more cases in which the alcoholic solution of bromine (1 : 5) was proved to be of undoubted value, both in the after-treatment of the wounded surfaces after the enucleation of the cancer and in its direct application in the form of parenchymatous injections and tampons. Henneberg has further tested the action of bromine on cancerous neoplasms in various extirpated tumors. Portions of the tumor which were placed in the solution and left to remain in it for forty-eight hours, on being removed showed only fibres of connective tissue with isolated

(*Spiegel*) mirror-cells. In the case of a freshly-extirpated cervical cancer, the cancerous masses were found destroyed throughout.—*Med. Chir. Centralblatt*, No. 18, 1875. E. F.

Erysipelas from Application of Arnica.—A further case of inflammation of the skin following the application of tincture of arnica is reported in the *Wien. med. Wochenschrift:* An elderly clergyman, who had been in the habit of applying the tincture for every external injury, having sustained a severe bruise of the left knee, applied the diluted tincture; soon afterward the skin became hard, red, and swollen, and in five hours this swelling had extended over the entire left lower extremity up to the hip, and was accompanied by much heat and itching; it subsided in about fifteen hours without desquamation. The author, Dr. Koller, states that as the tincture of arnica is used by the peasantry in all injuries, he has very often observed this inflammation of the skin, which closely resembles the erythema after bites from insects, after the use of even the diluted tincture. E. F.

Treatment of Neuralgia in the Mammary Gland.—In these cases Prof. Broca has returned to the treatment which was employed by Récamier. Whether the tumor is appreciable or not, as soon as there is pain or sensitiveness, he has recourse to methodical compression. Récamier superposed a series of disks of amadou, applied closely, and held in place by a very tight bandage, and this bandage was only renewed at long intervals.—*Revue de Thérap. Méd. Chir.* E. F.

Miscellany.

Appointments, Honors, etc.—Prof. A. B. Palmer, M. D., has accepted the position of Dean of the Medical Faculty (regular) of Michigan University, made vacant by the resignation of Dr. Sager. Dr. John H. Pooley, of Yonkers, N. Y., has been appointed Professor of Surgery in the Starling Medical College, Ohio. Dr. S. P. Conner has been appointed Professor of Anatomy and Clinical Surgery in the Medical College of

Ohio, and Dr. L. R. Longworth adjunct Professor of Anatomy. Dr. H. A. Buttolph, the Superintendent of the New Jersey Asylum for the Insane, has been appointed Superintendent of the Morristown Asylum. Dr. Charles Gowan, formerly Assistant Superintendent of the Worcester Asylum, in England, has been appointed Medical Superintendent of the Toronto Lunatic Asylum.

Surgeon-Major Rowe, who distinguished himself in the Ashantee War, has been appointed Administrator of the Gambia and Lieutenant-Governor of the West African Settlements. Mr. Brudenell Carter has been appointed Professor of Surgery and Pathology in the College of Surgeons. A bust of Prof. Hyrtl was unveiled, with appropriate ceremonies, in Vienna, in the principal hall of the university, July 22d. Dr. McRobin, Professor of the Practice of Medicine in Aberdeen University, has resigned his chair, which he has held with honor for forty-three years. Dr. George Buchanan has been elected President of the Society of Medical Officers of Health, in place of Dr. Letheby, retired. The Council of Medical Professors, at Vienna, has appointed Dr. Mayerhofer Extraordinary Professor of Gynæcology, and Dr. Rosenthal of Neuro-pathology and Electrotherapeutics. Prof. Langer has been chosen Rector of the Vienna University for 1875–'76. Rush Medical College, of Chicago, has effected a permanent union with the Chicago University. Dr. George B. Owens has been elected Lord Mayor of Dublin. Dr. Richard Heschl, of Gratz, has been appointed Professor of Pathology, in the University of Vienna, in place of Rokitansky, who has retired.

The Medical Register.—The *Medical Register* for 1875–'76 is two months behind time, owing, it is said, to the radical changes in the arrangement of the information it contains. The changes are numerous, but the only improvement we observe is the addition to each physician's name, for this city and vicinity, of the place and date of graduation. To offset this improvement, the whole arrangement of the *Register* is confused and perplexing in the extreme. No index is furnished, but simply a table of contents without any alphabetical or other order to render it of the slightest use. The names in the city list are published in small and indistinct type, and their separation from the Brooklyn list is very inconvenient. Advertising sheets are interspersed in the most inappropriate places, and the book has altogether the appearance of a cheap business directory, the wretched typography being quite unworthy of the Messrs. Putnam's Sons, and much inferior to that of the previous editions of the same work by Wood & Co. In justice to the editor, however, we admit that the volume contains a large amount of accurate information, evidently obtained with much care and labor.

Two more Deaths from Chloroform.—A death from chloroform occurred in the Ophthalmic Hospital, London, July 16th. The victim was a seaman, aged twenty-seven years, and was to have had an operation performed on one of his eyes. Death took place when chloroform had been administered three minutes.

Another patient, a woman, who was about to have a similar operation performed, died in Addenbrooke's Hospital, Cambridge, nearly at the same time, while under the influence of chloroform.

Mr. George Pollock, of St. George's Hospital, calls attention to these two cases in the *Times*, and endeavors to rouse the public to an interest in the matter. The profession has certainly knowledge enough on the subject of anæsthetics, but "wisdom lingers" unaccountably in certain quarters. The obstinacy and prejudice that yet prevail in regard to chloroform will make a curious chapter in the medical literature of the future.

American Doctors abroad.—A larger number than usual of medical gentlemen from this city are passing the season in Europe, and we are gratified to learn that some of them at least are making good use of their time and opportunities. Dr. Fordyce Barker took an active and creditable part in the prolonged debate on "Puerperal Fever" of the Obstetrical Society, in London; and, though defending views different from those of the majority of the members of that

Society, he was listened to with marked attention and respect. Dr. F. N. Otis, also, has been afforded an opportunity, through the courtesy of Mr. Berkeley Hill, of operating in the theatre of the University College Hospital before a large assembly of students and medical men, and of explaining his views on stricture of the urethra, and his method of treating it. We judge, from the report given in the *Lancet*, that Dr. Otis made a very favorable impression on his audience.

Journalistic Notes.—A new scientific weekly journal has appeared in London. It is entitled the *Electrical News*, and is edited by Mr. William Crookes, F. R. S. The *London Medical Record* has been changed from a weekly to a monthly journal. The *Chicago Medical Examiner*, heretofore published by Drs. N. S. Davis and F. Davis, is to be consolidated with the *Chicago Medical Journal*, and will hereafter be known as the *Chicago Medical Journal and Examiner*. It will be edited by Drs. J. Adams Allen and Walter Hay. Dr. Francis L. Parker, Professor of Anatomy in the Medical College of South Carolina, has become associate editor and publisher of the *Charleston Medical Journal and Review*. Messrs. Baillière, Tindall & Cox have issued the first number of a new monthly, *The Veterinary Journal*, conducted by Mr. George Fleming.

Chloroform and Ether in Obstetric Practice.—At a meeting of the Obstetrical Society of Boston, held April 10th, as reported in the *Boston Medical and Surgical Journal*, Dr. Lyman stated that he saw no reason for preferring chloroform to ether in puerperal convulsions or labor. He had no hesitation in denouncing chloroform in obstetrical operations, and was afraid of it. Dr. Wellington had never heard of a case of death from chloroform during labor, and Dr. Richardson had heard Sir James Simpson say that he had been unable to find a single instance of such fatality.

Mode of dissolving Salicylic Acid.—Dr. H. Bose, assistant in the Surgical Clinic in Berlin, has discovered that the solubility of salicylic acid in water is enormously increased by the addition of eight parts of borax to 100 of water. In this solution ten parts of the acid can be dissolved, whereas 300 parts of pure water dissolve only one part of acid. The borax should be dissolved with the aid of heat, and the salicylic acid added to the boiling fluid. The solution is afterward filtered.

The American Ophthalmological Society.—This association held a very pleasant and satisfactory meeting in Newport, R. I., July 23d, thirty-one members being present. Many papers were read and discussed. The Society adjourned on the afternoon of the 24th, to meet in executive session September 11, 1876, the day before the International Congress of Ophthalmology, to be held in New York.

Killed and Wounded on English Railways.—According to the latest annual report, it appears that 1,424 persons were killed, and 5,041 injured, on the railways of Great Britain during the past year. Commenting on this mortalty, the *Medical Times and Circular* says: "No thinking man will hesitate for a moment to declare that the safety of the public is sacrificed to mismanagement, parsimony, and the half-yearly dividend."

Connecticut State Medical Society.—At the annual meeting of this Society, held in May, 1875, the following officers were elected: President, P. A. Jewett, M. D., New Haven; Vice-President, A. W. Barrows, M. D., Hartford; Secretary, M. C. White, M. D., New Haven; Treasurer, J. C. Jackson, M. D., Hartford.

The Faxton Hospital, Utica.—This new hospital, the gift of Hon. Theodore S. Faxton, has been turned over to the city authorities and formally opened for the reception of patients. The building cost about fifty thousand dollars, and is said to be elegant and commodious.

A New Medical Term.—Dr. Pellarin notes the use by Proudhon of the word *dévalescent*, to express a condition tending toward sickness, in contradistinction to the word *convalescent*, or tending toward health.

The Presbyterian Hospital.—The following preamble and resolutions were adopted at the recent meeting of the Medical Board of the Northwestern Dispensary, New York:

Whereas, The Board of Managers of the Presbyterian Hospital of this city, at their last annual election, ignored all precedents and dropped from the Visiting Staff four men of reputable standing in the profession, and against whom said Board of Managers declare that they had no charges to make either as to their professional ability or gentlemanly conduct; and—

Whereas, Said Board filled the vacancies thus made without consulting (as is customary) the Medical Board, or advising with them regarding said appointees; and—

Whereas, Said Board of Managers contemptuously treated all communications from the Medical Board and from the profession at large:

Resolved, That the Northwestern Medical and Surgical Society most emphatically approve the action of the late Medical Board, and protest against the injustice of said action of said Managers.

Resolved, That in our view a valuable precedent will be established, the dignity of our calling vindicated, and the harmonious action of the members of our profession secured, in meeting such cases by our absolute refusal to accept positions made vacant in such a manner.

Committee,
C. S. Wood, M. D.,
Wm. M. McLaury, M. D.,
F. K. Bosworth, M. D.,
E. K. Henschel, M. D.,
Secretaries pro tem.

Surgery of the Arteries.—In a lecture on the arteries, and their ligation to arrest acute traumatic inflammation, Dr. C. F. Maunder (*Lancet*, July 10th) arrives at the following conclusions:

That ligature of the superficial femoral artery has arrested acute inflammation consequent on wound of the knee-joint.

That ligature of a main artery will quickly diminish profuse suppuration, and prevent death by exhaustion.

That, while it arrests profuse suppuration, it will, by allowing the patient to gain strength, afford an opportunity for amputation at a future time.

That gangrene and secondary hæmorrhage, as the result of ligature, should not be anticipated in the healthy subject.

That the dread of these has arisen from our knowledge of the consequences of the ligature in instances of known diseased vessels—aneurism, for example.

That a slough on the heel, caused by the pressure of a splint, was quickly detached, and the wound soon closed, although the superficial femoral had been tied a few days previously.

That symptoms of inflamed bone ("starting pains") quickly disappeared.

That the arterial tension of the rest of the body will be increased beneficially by the ligature.

Ovariotomy in Edinburgh.—The fourth series of fifty cases of ovariotomy is reported by T. Keith, F. R. C. S., in the *British Medical Journal* of June 26, 1875. The mortality of the different series of his cases is given by Mr. Keith as follows: In the first series of fifty cases there were eleven deaths; in the second, eight deaths; in the third, eight deaths; and in the fourth, six deaths. In the six fatal cases of the fourth series the cause of death was septicæmia. "Further experience," says Mr. Keith, "has satisfied me of the value of the actual cautery in the treatment of the pedicle, and I am coming to the conclusion that it is the best of all the intra-peritoneal methods for securing the pedicle." Sulphuric ether was given in all the cases.

St. Mary's Free Hospital for Children.—The Managers of this Hospital have issued cards, signed by Bishop Potter, certifying that the possessor has placed "one brick" in the new hospital in Thirty-fourth Street, adjoining their present building (No. 407 West). The sum represented by this certificate is ten cents, and the money given will represent an actual part of the building. This method of raising funds has before been successfully resorted to for similar purposes, and, it is hoped, will add considerably to the building-fund in the present instance. Thirty thousand dollars is needed for the purchase of the two lots required, and the building which is on them.—*Medical Record.*

Royal Commission on Vivisection.—The following-named gentlemen have been appointed to act as her Majesty's commissioners to inquire into the practice of subjecting live animals to experiments for scientific purposes, and to consider and report what measures, if any, it may be desirable to take in respect of any such practice: Viscount Cardwell, Lord Winmarleigh, the Right Hon. W. E. Foster, M. P.; Sir J. B. Karslake, M. P.; Mr. T. H. Huxley, Professor of Natural History in the Royal School of Mines; Mr. John Eric Erichsen, and Mr. Richard Holt Hutton.

Third Dentition.—The Paris journals relate the occurrence of a third reproduction of all the teeth, at the Hospital of Incurables, in the person of a woman aged ninety years. The first reproduction ensued at the age of forty-seven, the second reproduction at the age of sixty-three. Partial reproduction occurs occasionally, but the record of a complete dentition at a period so far advanced is in fact perhaps unique.—*Lancet.*

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from July 14 *to August* 13, 1875.

Forwood, W. H., Assistant Surgeon.—Granted leave of absence for one month, with permission to apply for an extension of two months. S. O. 155, Department of Texas, August 6, 1875.

Middleton, J. V. D., Assistant Surgeon.—Leave of absence extended one month. S. O. 83, Military Division of the Missouri, August 2, 1875.

Janeway, J. H., Assistant Surgeon.—Granted leave of absence for four months. S. O. 150, A. G. O., July 23, 1875.

Huntington, D. L., Assistant Surgeon.—Relieved from duty in Department of California and to report in person to the Surgeon-General. S. O. 158, A. G. O., August 5, 1875.

Brooke, John, Assistant Surgeon.—Leave of absence extended one month. S. O. 153, A. G. O., July 27, 1875.

Brown, Harvey E., Assistant Surgeon.—Assigned to duty at Fort Barrancas, Fla. S. O. 141, Department of the Gulf, July 31, 1875.

Kimball, J. P., Assistant Surgeon.—Granted leave of absence for one month, with permission to apply for an extension of one month. S. O. 147, Department of Dakota, August 3, 1875.

Styer, Charles, Assistant Surgeon.—Assigned to duty at Fort Macon, N. C. S. O. 109, Department of the South, August 3, 1875.

Elbrey, F. W., Assistant Surgeon.—Assigned to duty at Frankfort, Ky. S. O. 106, Department of the South, July 27, 1875.

Cowdrey, S. G., Assistant Surgeon.—Granted leave of absence for four months. S. O. 139, A. G. O., July 12, 1875.

Ainsworth, F. C., Assistant Surgeon.—To report to the commanding general, Department of the Columbia, for assignment to duty. S. O. 147, A. G. O., July 20, 1875.

Paulding, H. O., Assistant Surgeon.—Order by telegraph, to proceed with all possible dispatch to Fort Randall, D. T., for duty at that post, confirmed. S. O. 141, Department of Dakota, July 24, 1875.

Brown, P. R., Assistant Surgeon.—To report to the commanding general, Department of Dakota, for assignment to duty. S. O. 147, C. S., A. G. O.

Maus, L. M., Assistant Surgeon.—Assigned to duty at Nashville, Tenn. S. O. 111, Department of the South, August 6, 1875.

Taylor, B. D., Assistant Surgeon.—Assigned to duty at Fort Snelling, Minn. S. O. 149, Department of Dakota, August 5, 1875.

Worthington, J. Ch., Assistant Surgeon.—Assigned to duty at Fort McHenry, Md. S. O. 143, Military Division of the Atlantic, July 24, 1875.

Comegys, E. T., Assistant Surgeon.—Assigned to duty at Fort Wadsworth, N. Y. H. S. O. 143, C. S., Military Division of the Atlantic.

Reed, W., Assistant Surgeon.—Assigned to temporary duty at Willet's Point, N. Y. H. S. O. 147, C. S., A. G. O.

Kilbourne, H. S., Assistant Surgeon.—Assigned to duty at Fort Gibson, Indian T'y. S. O. 139, Department of the Missouri, August 3, 1875.

Merrill, J. C., Assistant Surgeon.—Assigned to temporary duty at St. Louis Barracks, Mo. S. O. 147, C. S., A. G. O.

Hall, W. R., Assistant Surgeon.—Assigned to duty at Fort Gratiot, Mich. S. O. 143, C. S., Military Division of the Atlantic.

Barnett, R., Assistant Surgeon.—Assigned to duty at Coushatta, La. S. O. 145, Department of the Gulf, August 5, 1875.

Torney, G. H., Assistant Surgeon.—Assigned to duty at Fort Wood, N. Y. H. S. O. 143, C. S., Military Division of the Atlantic.

Crampton, L. W., Assistant Surgeon.—Assigned to duty with battalion of Thirteenth Infantry, in camp at Mississippi City, Miss. S. O. 142, Department of the Gulf, August 2, 1875.

Porter, Joseph Y., Assistant Surgeon.—Assigned to duty with troops temporarily encamped at Indian Key, Fla. S. O. 127, Department of the Gulf, July 13, 1875.

Wood, M. W., Assistant Surgeon.—Assigned to duty at Camp Douglas, U. T. S. O. 87, Department of the Platte, August 4, 1875.

Taylor, M. E., Assistant Surgeon.—Ordered to Department of the Gulf. S. O. 147, C. S., A. G. O.

Newlands, Wm. L., Assistant Surgeon.—Ordered to Department of California. S. O. 147, C. S., A. G. O.

Smith, R. E., Assistant Surgeon.—Ordered to Department of the Missouri. S. O. 147, C. S., A. G. O.

Shannon, W. C., Assistant Surgeon.—Assigned to duty at Fort Porter, N. Y. S. O. 143, C. S., Military Division of the Atlantic.

Lord, G. E., Assistant Surgeon.—Assigned to duty at Fort Buford, D. T. S. O. 145, Department of Dakota, July 31, 1875.

Tesson, L. S., Assistant Surgeon.—Assigned to duty at the Military Prison, Fort Leavenworth, Kansas. S. O. 143, Department of the Missouri, August 9, 1875.

Spencer, Wm. G., Assistant Surgeon.—Assigned to duty at Lebanon, Ky. S. O. 106, C. S., Department of the South.

Rosson, R. L., Assistant Surgeon.—Assigned to duty at Fort Monroe, Va. S. O. 143, C. S., Military Division of the Atlantic.

Obituary.

Dr. William T. Walker, whose death occurred May 16, 1875, at his brother's home, in Virginia, came to this city, almost a stranger, in the autumn of 1867. In the eight years preceding his untimely death he had thoroughly established himself in practice, and had not only won the confidence and affection of a large class of patients, but also the most favorable opinion of all his professional brethren with whom he came in contact. With a superior general education, a sound professional training, an enthusiastic love of his chosen calling, and many attractive personal qualities, he would doubtless have attained a brilliant success had his life been spared. His death will long be lamented by his many associates, and his skill and kindness missed by a host of grateful patients. We are indebted to his brother, Dr. Z. J. Walker, of Rockbridge County, Va., for the following sketch of the late Dr. Walker's early life: "Dr. Wm. T. Walker was born January 28, 1838, in Rockbridge County, Va. He was educated at Washington College (now Washington and Lee University, Lexington, Va.). He graduated there in the summer of 1859. He then went to Georgia, and took charge of a classical school, in which business he continued until the commencement of the war. At the beginning of hostilities he resigned his position as principal of the school, and joined a Georgia regiment as private. At the reorganization of the army he was elected captain. He belonged to Mahone's division of infantry. He was in all the battles of General Lee's army, except Sharpsburg. He was wounded in the charge on Cemetery Hill, at Gettysburg. In 1865 and 1866 he read medicine in the office of his brother, Dr. Z. J. Walker, in 1867 he graduated in medicine at the University of Virginia, and in the autumn of the same year went to New York and entered the Woman's Hospital, where he served the usual term of eighteen months."

James Fernandez Clarke, M. R. C. S., for more than forty years actively connected with the medical press in London, died July 6th, aged sixty-three years. In addition to his extensive and constant literary labors, Dr. Clarke also carried on a large and lucrative practice. In his recent sketches, entitled "Autobiographical Recollections of the Medical Profession," he has embodied many interesting facts connected with his early life and his associations with the celebrities of a past generation.

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Original Communications.

ART. I.—*On the Methods of rendering the Female Urinary Bladder accessible, and on probing the Ureter in Women.* A Clinical Lecture by Prof. SIMON, of Heidelberg. Translated expressly for the NEW YORK MEDICAL JOURNAL, with the consent and under the supervision of the author, by AUGUSTUS C. BERNAYS, M. D., of St. Louis, Mo.

GENTLEMEN: I take the liberty to refer more extensively *to the methods of making the female bladder accessible*, which of late have been cultivated in our clinic, and also *on the practice of probing the ureter*, which we have tried to realize during the past months. You will be convinced of the great bearing these methods have on the local treatment of a whole range of diseases, which heretofore could be but incompletely cured, or were totally incurable, and which may now be undertaken with a certain view of success. In the first place, in regard to the

Methods of rendering the Female Urinary Bladder accessible.—Mr. Wildt, one of my scholars, has lately published a short paper on this subject, in the "Archives of Clinical Surgery," vol. xviii., p. 167, in which he states our method, and illustrates it by cases from our clinic. As each single act of our method requires such a nicety of detail, and as my views in regard to the indications have extended considerably since Mr. Wildt's publication, a reiterated and more thorough explanation seems necessary. Besides, I mean to add somewhat to the historical bearings already adduced by Mr. Wildt.

The female urinary bladder has been, ere now, made accessible in very different modes, all serving to free it from stones and foreign bodies. To this end bloodless dilatation of the urethra, urethrotomy, vagino-vesical section, vestibular section, and the suprapubic stone operation, were carried out. Henceforth, but two of these operations are likely to be performed, which, in their present state of perfection, give assurance of success, not only for the harmless extraction of stone, but also for effective local treatment in a series of other diseases. These two methods are *bloodless dilatation of the urethra and vagino-vesical section.* (Temporary artificial vesico-vaginal fistula.[1])

The first of these methods, the bloodless dilatation of the urethra, can be carried out either gradually or rapidly. The gradual will undoubtedly have to yield to the rapid mode of dilatation, because, from their protracted use, the dilators are apt to create inflammation and ulceration. The result of the proceeding takes several days to be brought about, while, by the rapid way, it is attained in but a few minutes, and without any disadvantage at all.

The observation that the urethra can be very considerably dilated, without lesion of the tissues and without disturbing the continence of urine, was made in very remote times. Wildt cites from literature quite a number of cases, and I am able to quote from several ancient authors, to prove that bloodless dilatation (of course but for the extraction of stone) has been proposed as a method.[2] Franco ("Traité des Hernies," 1561) proposes the bloodless dilatation of the urethra, by means of an instrument which he had constructed on purpose, after which he extracted the stone by the forceps. Fabricius Hildanus advocates also bloodless dilatation, and Peter Dionys minutely describes the mode for artificial dilatation of the urethra previous to extraction of stones. Bertrandi invented for his operation a three-branched instrument. Calculi were either taken out by means of instruments or with the finger only.

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[1] Even urethrotomy, which has been performed, both with and without subsequent rupture, in women, will be perfectly supplanted by either of the two methods, on account of its bad results. A statistical report by Hybord, of twenty cases in which urethrotomy was performed, shows eight deaths, and incontinence in two cases.

[2] S. Sprengel's "History of Surgery," Part i., Halle, 1805.

Of late (1837) Sir A. Cooper has five times extracted stones by bloodless dilatation, and sets forth the benefits this method offers, whether performed by the sponge-tent, the speculum, or the forceps. He practised partly gradual, partly rapid dilatation.[1] Hybord (1872), in an exhaustive treatise "On Calculus in the Bladder of Women and Little Girls," describes the gradual as well as the rapid dilatation. The former he effects by means of the sponge-tent, with constantly-increasing probes and dilators; the latter by means of the opened branches of a pair of forceps, or the fingers, or some many-branched dilating instrument. According to him, dilatation can be carried out "without danger and without laceration," only by means of instruments the size of which does not exceed three to four centimetres in circumference.[2] In 1874, Christopher Heath, in London,[3] published an essay, "On Calculus of the Female," in which he says he has found, in an extensive practice, that the finger can be introduced into the bladder without producing any considerable injury or permanent incontinence. His treatment consists in placing his patient under chloroform in the position for lithotomy, when he introduces a conductor into the urethra, and, while pressing this down with one hand, he enters into the bladder, on the conductor, with the oiled finger of his other hand. By a rotary movement the finger can easily be introduced. In a narrow urethra Heath first inserts the little and then the index finger. Twice he had to dilate the contracted urethra with the branches of a bullet-forceps, which he introduced on a conductor into the inner part of the urethra, in order to be able to insert his finger. Dilatation in these cases, at the same time, served as a remedy. Besides, as I am informed by one of my pupils, who for a considerable time lived in London, Heath uses a speculum without mandrin, cut obliquely at the point, in order to dilate the constrictor muscle where fissures of the urethra occur, and to avoid injury on using concentrated caustics on the walls of the bladder.

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[1] A. Cooper, translation by Shütte, Cassel, 1851, p. 373.

[2] S. Hybord, "Des Calcules de la Vessie chez les Femmes et les petites Filles," Paris, 1873.

[3] Heath "On Calculus of the Female," *Medical Times and Gazette*, 1874.

In spite of these observations and considerations, the bloodless dilatation of the urethra did not receive the consideration and popularity it merited. In the first place, the indications for this operation were so limited that it was resorted to but very rarely; besides, the whole proceeding was, as yet, so very incomplete, that the fear of urinary incontinence as a consequence could not be overcome. By my improved method for the rapid and safe dilatation, by the actual proof of the innocuousness of that method, based on a vast number of observations, by the enumeration of a number of indications for the diagnosis and treatment of several diseases of the bladder and the organs which become accessible through that organ, I believe I have procured for the dilatation of the urethra a general reception into practice, and an equal rank by the side of other modes of exploring the female urino-genital organs.

My exploration of the bladder consists of three acts, viz.: The slitting of the orifice of the urethra, the dilatation of the urethra itself by means of plug-shaped specula, and the subsequent bimanual digital palpation of the bladder.[1]

Concerning the first act, the slitting of the margin of the urethral orifice, I think it proper to recall to mind that the orifice is the narrowest and most unyielding part of the urethra, because it is entirely hemmed in by the unyielding mucous membrane of the vestibule and vagina, and that, between those and the mucous membrane there are but few fibres of the muscular coat of the urethra. According to my experience, piercing the orifice, without using considerable force, is, in an overwhelming majority of cases, impossible, and the urethra will be but rarely pierced without some kind of preparatory proceeding, by means of a conductor or after a bloodless enlargement by a bullet-forceps. These rare cases excepted, I widen the orifice by small slits. Commonly I make two lateral incisions of $\frac{1}{4}$ ctm. in the upper margin and one downward of $\frac{1}{2}$ ctm. in depth. By these slits several considerable advantages are gained. Above all, a forcible intrusion, which, as I have frequently noticed, causes a considerable laceration of the edge of the orifice and also sometimes of the mucous lining situated above, is obviated. Besides, it allows the finger to enter deeper into the bladder. A further dilatation by the finger is impossible without applying force fraught with danger of lacerating these parts, and therefore a closer examination of the bladder is generally abstained from. This disadvantage is overcome by a dilatation, after slits of the above-named depth, by which the orifice becomes wide enough to admit even the thickest finger without the exercise of any force. If the slits are at first not made sufficiently deep, so that neither speculum nor finger can advance, the stretched tissue is easily split a little more by using them as conductor. In consequence of these slits the finger can go up higher, by the length of the incisions, that is, $\frac{1}{4}$ to $\frac{1}{2}$ centimetre, *to which extent the urethra has been shortened.* The small lesion produced by these slits does not amount to any thing in diseases where the palpation of the urinary bladder is indicated, and a disadvantage, so far as continence of the bladder is concerned, cannot result from them, as there are very few if any fibres of the muscular coat cut through. The slits skin over and remain permanent. This is favorable in those cases in which repeated explorations or operations in the bladder have to be performed. In these cases explorations can be made easily and without chloroform, as they cause almost no pain. The slitting is best performed by means of scissors.

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[1] I count our method among the bloodless kinds, although we do make small splits at the edge of the orifice, because the dilatation of the urethra itself is done without the loss of blood.]

Dilating the urethra itself with plugs forms the second act. The urethra proper consists of a mucous lining of the muscular coat which covers the urethra throughout, and finally the anterior wall of the vagina, which, however, does not surround the urethra, but is only in apposition to it, as a broad plate. The mucous lining behind the orifice, and the muscular coat of the urethra, are very extensible, and the further insertion of the dilator-plug, therefore, meets with much less difficulty. Some surgeons dilate the urethra only by the use of the fingers, inserting sometimes first the little and then the index finger. I prefer in all cases the successive use of plug-shaped specula. The finger, being commonly very much wrinkled, has to overcome more frictional resistance, and does not so easily pierce the urethra as the smooth plug. At narrower points, therefore, as under the pubic arch, the mucous lining is frequently torn and the muscular coat becomes not only dilated, but also displaced and bruised by the advancing finger. This undue traction is apt to become sufficiently considerable to interfere with continence. Heath, who dilates with the finger, says of his patients: "In all of my cases I find the mucous lining torn under the pubic arch, and for twenty-four hours there exists a degree of incontinence." In my patients tearing occurred but rarely, and, with but few exceptions, continence of urine proved to be unimpaired immediately after dilatation.[1] I believe this favorable result, after proceeding in my method, is due to the small traction exercised on the muscular coat of the urethra, by the successive dilatation with smooth plugs. The forceps, also, and the many-branched dilators, are likwise less appropriate than our instruments. With those the dilatation is neither uniform nor fully controllable, while with our plugs it increases in a pefectly fixed and steady progression, each larger size of the plugs being one millimetre larger in diameter than the one preceding it. These plugs are specula, which I had made of hard rubber, cut off straight at the point and shutting with a rounded mandrin (*vide* Figs. 1 and 2). Together with the mandrin each forms a round, smooth plug, with which it is easy to enter the urethra. I make use of seven different sizes for dilatation. The smallest size has ¾, the largest two centimetres in diameter. After the thickest has been used, I introduce my finger into the bladder. The dilator-plug offers at the same time the advantages of a speculum.

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[1] Frequently I have made a test of the continence, immediately after the exploration, as well when the patient was lying on her back as when in an upright position, and I found the bladder filled with water, and even large quantities retained even before patients were completely awake from the narcosis.

In the third act the finger is passed through the urethra into the bladder, and the interior of it is examined. To enter into the bladder Heath prescribes a rotatory advance of the finger. With our mode of dilating by plugs, the finger advances so easily, that no rotatory movement is required. No author mentions how desirable a thorough palpation of the bladder is. To this end I find two manipulations of great service: First, on passing the forefinger through the urethra, I introduce at the same time the middle finger into the vagina, then advance with the forefinger into the bladder until the margin of the septum urethro-vaginale presses against the commissure of the two fingers. If this direction is neglected, and the middle finger doubled into the hand, it will press against the labia majora, and the forefinger will not advance as far by at least one centimetre. The second manipulation consists in pushing the apex of the bladder against the exploring finger with the other hand. The apex is thereby inverted, its mucous surface reached and directly palpated with the point of the finger. Only those lateral parts which are attached to the bone are not so easily reached, but an operation requiring the most accurate control, i. e., the extirpation of a foreign growth, can be easily performed.

By the method described even the narrowest urethra can be dilated, without the least force, and in a few minutes, to that width which is warranted by the individual circumstances.

But, however easily the operation can be carried out, and however small the lesion attached to it may be, like former methods it might be followed by an injury, *the incontinence of urine*, if certain precautions, of which we will speak below, were neglected. Incontinence of urine is so considerable an evil, that, if it frequently follows dilatation, dilatation has to be abandoned. Indeed, some authors, for instance, A. Cooper, believe that such a danger does not exist,[1] but experience contradicts it. Quite a number of authors have witnessed this injury after spontaneous passage as well as after bloodless extraction of stones;[2] and Cooper himself admits that one of his five patients, even at her dismissal from Guy's Hospital, suffered from incontinence.[3] I had also a case in the clinic at Rostock, in which, after bloody extraction of a large calculus, complete incontinence, which I tried in vain to overcome, existed for years. And, indeed, how can it be expected but that the sequel of overdone dilatation will be a permanent incontinence? Fear of this evil is therefore fully justified.

But fear, on the other hand, was carried to its extreme. The operation by which, as will be shown, very extraordinary results may be attained, even though dilatation be carried only to a harmless extent, was neglected. So seldom was the operation performed, that in 1872 Hybord could with the greatest trouble collect from literature twelve cases in which calculi had been extracted from the bladder by bloodless dilatation. (Hybord, "Traité," etc., p. 101.)

In order, therefore, to obtain the advantage of the proceeding, without incurring its risk, I first tried to decide the question, *To what degree may we dilate without danger of permanent incontinence?* In spite of the importance of the question, we find, in the greater number of authors, but very vague statements in this respect, and putting aside our measures as published by Mr. Wildt, Hybord, and quite recently Spiegelberg,[4] has stated fixed measures. But the statement of the two latter differs so widely, that the uncertainty remains. While Hybord thinks that, without being guilty of inconsideration, and without running the risk of laceration, dilatation must not be carried above three to four centimetres of circumference (=1.0 to 1.3 diameter) Spiegelberg states that *our* specula are for most cases sufficiently large; but in regard to the dilatability of the urethra he states that the canal may without danger be extended to 2.5 centimetres diameter, and *more* (=7.8 centimetres of circumference). According to my experience, both authors are wrong. Hybord's measures remain below, Spiegelberg's exceed, the admissible degree.

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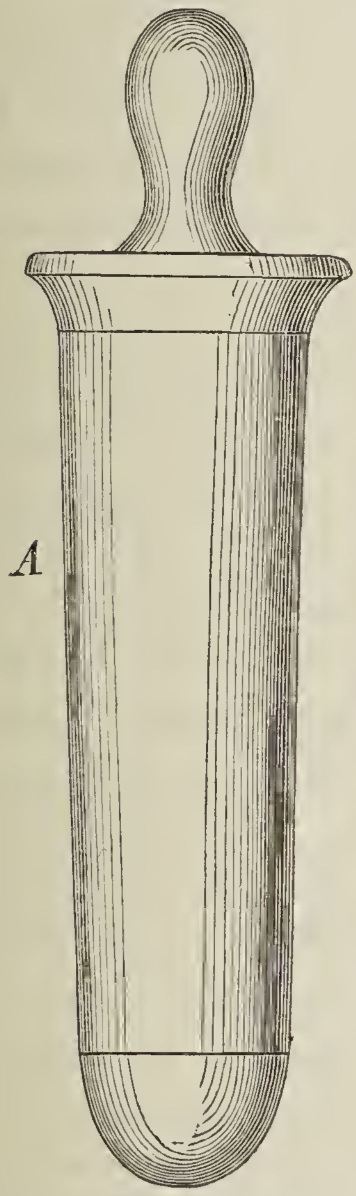
[1] Cooper, "Surgical Works," says: "The greatest advantage of the bloodless dilatation consists in the fact that the patient is still able to hold his water."

[2] Clauder, Ségalas (S. Hybord), Heath, have cited such cases.

[3] S. Hybord, his work, page 91.

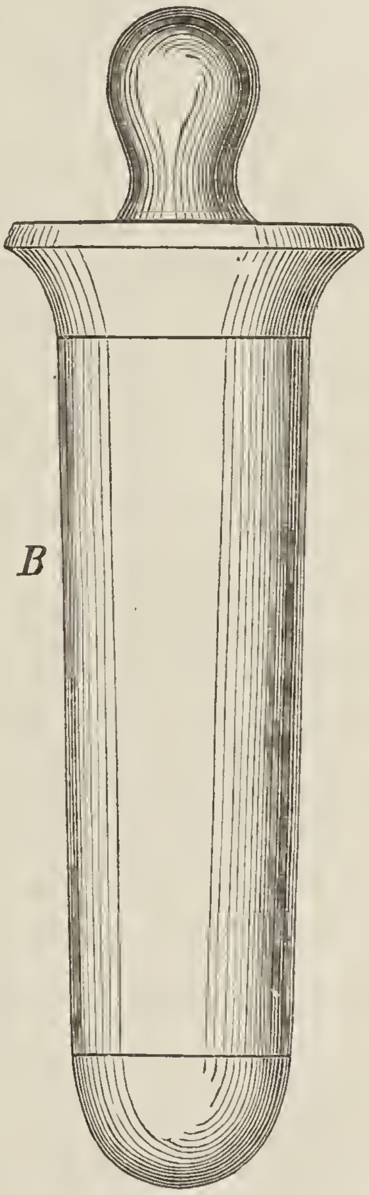
[4] Spiegelberg, "Ueber die Fissur des Blasenhalses mit Bemerkungen über die rapide Dilatation der Harnröhre beim Weibe," *Berliner klin. Wochenschrift*, April, 1875, No. 16.

FIG. 1.



STOPPER-SHAPED SPECULUM, 1.9 centimetre in diameter and 6 centimetres in circumference (natural size).

FIG. 2.



STOPPER-SHAPED SPECULUM, 2 centimetres in diameter and 6.3 centimetres in circumference.

Remaining inside of Hybord's numbers, we will indeed never meet with incontinence, even a laceration of the mucous lining will never take place; but we will neither be able to pass the finger through the urethra, nor to palpate the bladder. For three to four centimetres of circumference do but correspond with the forefinger of a child. The most valuable advantages of dilatation must, therefore, be abandoned.

My numerous investigations and observations have taught me that we may proceed with plugs of 1.9 to 2 centimetres in diameter = to 6 to 6.3 centimetres in circumference, in the bladder of a grown woman, without any noteworthy disadvantage.[1] Small lacerations of mucous membrane sometimes occur, but they heal within a few days. Continence was in an overwhelming number of cases so little impaired, that, as I stated above, immediately after dilatation, larger quantities of water were kept back even when the patient stood up; but very rarely, and only in cases where the bladder had at the same time been palpated repeatedly, with uncommonly thick fingers, continence was not quite perfect for the next twenty-four hours.

In two cases, in which I had to extirpate very extensive papillomas of the bladder, I carried dilatation to a still further degree. In three cases, I think, I reached the maximum of admissible distention. Besides my finger, which measures at its base not quite 6 centimetres in circumference = to 1.8 diameter, I introduced in three cases spoons and fingers into the bladder, so that the stems of them lay in the urethra next to the finger. By these stems the circumference was increased to 6.5 and 6.8, and in changed positions of the instrument it amounted at the most to 7 centimetres. With one of the patients I had two, with the other (at intervals of several months) at least twelve sittings; each of them at from one-half to three-quarters of an hour duration. Even in these cases no permanent incontinence remained, yet in both patients, and after each sitting, a state of debility was visible, which lasted for several weeks. This debility became obvious by a dripping of urine, which appeared when the urine was retained for one or two hours, or when the patients were exposed to some violent motion, for instance, on walking or driving over rough roads. Not before the third or fourth week did this condition disappear and perfect continence return. These observations prove to my satisfaction that here the highest degree of what is admissible was reached, and that the patients, on further dilatation, would have been exposed to the danger of permanent incontinence. Nor could I find in literature a well-warranted case in which the above-mentioned dimensions were transgressed with impunity. Exact dimensions of the body which passed the urethra commonly are wanting, or it is not stated whether, after dilatation, continence remained unimpaired. Among all the other cases cited by Wildt and myself, as also among Hybord's collected cases of artificial dilatation of the urethra and spontaneous passage of larger calculi, I find not a single statement that is of any value to me.[1] Hyrtl alone is more accurate. In one of the two cases quoted by him,[2] a stone had been passed, in the other coitus had been practised by way of the urethra, without producing incontinence. The stone was seven Parisian lines in diameter, and in the second case the forefinger could easily be brought into the bladder; here, therefore, we have dilatations inside of our admitted maximum measure. Of course, no reliance can be put on the vague statements of compendiums and text-books, according to which "calculi of the size of a pigeon's-egg can without any harm be extracted." Spiegelberg likewise has brought no matter-of-fact proof for his above-cited sentence, and I believe he gave it more on account of those statements just criticised than from personal experience. I, at least, am convinced that if we were to dilate the urethra to those enormous proportions of 2.5 centimetres diameter (= 7.8 circumference) *and more*, say for instance 2.6–2.7 diameter (= 8.1–8.5 centimetres circumference), we would be likely to meet with the most disagreeable results.[3]

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[1] In Wildt's essay the third number of our specula is shown. The two which are here seen are our thickest.

In girls, to be sure, dilatation must not be carried on to the same extent as in women. In a girl of eleven years Heath extracted a calculus of $\frac{3}{4}$ in.[4] (= 1.88 centimetre) in diameter.

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[1] Generally only the weight of the calculi is given.

[2] Hybord, "Anatomy," eighth edition, p. 689.

[3] A good way to get an idea of the size a speculum of 2.5 to 2.7 centimetres in diameter is to have one made out of a chunk of wood, or to make a drawing on paper.

[4] One English inch, which has eight lines, is equal to two and a half centimetres.

The extraction was followed by incontinence, which after a month was so far better that the patient could hold the urine for one hour. She then left the hospital, but, on her return to it, this very incomplete continence was not improved, and it remained so permanently until death, which followed two months and a half after the extraction, in consequence of pyelitis. In a girl with congenital atresia of the vagina and hæmatometra, I enlarged the urethra so much, that I could introduce with my finger the stem of an instrument which together made a circumference of 6.3–6.5 centimetres. The patient had incontinence for eight days. In girls from eleven to fifteen years the highest degree of *completely innocuous dilatation* seems, therefore, reached at a circumference of 4.7 to 5.6 centimetres (= to 1.5 to 1.8 diameter), in girls of from fifteen to twenty years, at 5.6 to 6.3 centimetres in circumference (= 1.8 to 2.0 centimetres in diameter); and in exceptional cases dilatation might be carried on a trifle further. Evidently the degree of dilatation has also to be in proportion to the development of the girl, and more especially to her urethra.

Summing up the above, we arrive at the conclusion that, in the adult, dilating-plugs of 6 to 6.3 centimetres in circumference, i. e., 1.9 to 2 centimetres in diameter (*see* Figs. 1 and 2), can be used without danger in extreme cases, i. e., where the disease justifies a rather more daring course, dilatation may be increased as far as from 6.5 to 7.0 centimetres in circumference. In girls, 4.7 to 6.3 centimetres in circumference are the measures inside of which the surgeon has to keep according to each individual case.

A degree of dilatation in which incontinence need not be feared is perfectly sufficient in a majority of cases, where dilatation is desirable for diagnostic or therapeutic purposes. The dimensions of 2 centimetres in diameter, = to 6.3 centimetres in circumference, are also those of our largest speculum, which is a width sufficient to admit the largest finger into a urethra, without any exhibition of force.[1] The thin stem of an instrument may then be placed at the side of the finger. The increase in circumference must be according to the size of the finger, and must not exceed 0.5 to 1.0 centimetre, so that stem and finger together never have a circumference of more than 7 centimetres. In cases in which dilatation may have to be carried further, in order to make the bladder accessible, the other method, that of vagino-vesical section, would have to be carried out.

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[1] Very thick fingers have about seven centimetres in circumference at the base of the first phalanx, but, if we constrict them as much as the narrowest part of the urethra under the arcus pubis generally does, this cir-

In order to recommend the universal adoption of bloodless dilatation, and palpation of the bladder, it was necessary to increase the scant number of cases heretofore known, by a sufficient series of explorations, in order conclusively to prove their harmlessness.[1] I believe I have solved this problem also. In the numerous cases of disease of the bladder and its surrounding parts, which fell under our observation,[2] and in which digital palpation seemed of any use, I allowed no occasion to escape without performing the same. After I had convinced myself of the perfect safety of the performance, I did not think it wrong to make the exploration in such women as offered themselves for it of their own accord. Within two years and a half, the time I have been practising digital palpation of the bladder, over sixty cases came under observation in the Heidelberg clinique. Generally palpation was carried out by us repeatedly in one sitting and by several of our medical brethren, who happened to be in our clinique at the time, yet, as I stated above, no serious consequence was ever witnessed. By so great a number of palpations of the bladder, every scruple which might have been brought forward against it ought now to be put aside, and this method of exploration, which was formerly only permitted in some rare cases and by specialists, should become the common property of every medical man.

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cumference is reduced to 6.5 or 6.8 centimetres. Fingers of this size can easily pass the urethra after our largest speculum has been used.

[1] The greatest number were cases of catarrh of the bladder and cancer of the uterus which had become continuous on to the bladder.

[2] In this way it was possible to demonstrate the digital exploration of the bladder, after dilatation of the urethra, to a great number of native and foreign colleagues who visited our clinique, and to convince them of the ease and safety of our method.

As the exploration is very painful, it is best, in carrying it out, to place the patient under chloroform and in the "Steiss-Rückenlage," a position on the back, with legs flexed very high on the abdomen by two assistants. On reiterated examinations we had frequently no use for chloroform, the slitting of the orifice being no longer necessary, and the extension of the urethra almost painless.

The second mode of rendering the cavity of the bladder accessible consists in the performance of *vagino-vesical section.* This is brought to bear in those cases where the dilatation of the urethra has attained no results, or would have to be carried to an undue extent. This operation is attended with a wound, and sometimes with a considerable hæmorrhage, and though the chances for healing after the reuniting of the wound are very great, yet a vesico-vaginal fistula may remain, which requires another operation.

Vesico-vaginal section was formerly practised for the extraction of stone, and in recent times for the free flow of urine, in very obstinate cases of catarrh of the bladder. Transverse and longitudinal sections were made, and care had to be taken that they were made sufficiently large to carry out their intention. I have cultivated this mode of rendering the cavity of the bladder accessible still farther on the cadaver, and, by a peculiar direction of the cut, *have succeeded in introverting the bladder through the incision into the vagina and even into the vulva itself*, so that it can be laid open not only to palpation but to inspection also.

To this *post-mortem* experiment I was led by observations at the sick-bed, where, in the anterior vaginal vault, by a large loss of substance, a transverse defect in the vagino-vesical parietes occurred, I had frequently witnessed an introversion of the bladder to such a degree that it could be seen in front of the parts, of the size of a fist; and I tried artificially to reproduce this pathological state. By a long incision through the whole length of the urethra, to the mouth of the uterus, the bladder could not at all or but very little be introverted. The inversion of the vertex and the upper part of the fundus, however, I succeeded in obtaining after a transverse incision of three centimetres in length, into the anterior vault of the vagina, one-fourth to one-half centimetre in front of the anterior lip of the os uteri, and still better when, beside this transverse incision, a second one was made at right angles directly toward the urethra, so that a T-shaped incision resulted. By the exercise of some traction in the direction of the vagina, with a fine double hook, inserted into the mucous lining of the bladder, and a simultaneous pressure above the pubic arch on the apex of the bladder, I produced introversion. The incisions are safest carried out by dilating the vagina with our dilatation-instruments, or with Bozeman's speculum, the wall of the bladder being well extended; or after drawing down the womb and the upper part of the vesico-vaginal wall. The hæmorrhage which is to be expected in the living patient can be stopped by torsion or ligature.

After the purpose for which the incision through the wall of the bladder was made has been attained, the opening must be closed again. If the wound can be closed when fresh, we have only to sew it up, but, if the borders are cicatrized, the regular operation for vesico-vaginal fistula must be performed. The closure of a recent vesico-vaginal section is easy, and the fistula will almost always heal by the first operation. In such cases we have a simple cut, the edges of which exactly fit upon one another. But even the cure of a cicatrized cut gives less trouble than a common defect of the same size, which most generally has its origin in bad cases of delivery. In the latter the edges are generally thin and sharp, and a loss of substance must be supplied, whereas in the artificial fistulas there is no loss of substance, and the edges are of normal thickness.

After the vesico-vaginal section, especially the T-shaped incision, the inside of the bladder is made so completely accessible by inversion, that the most complicated and most difficult operation can be performed with the same facility as on the surface of the body.

We must now speak of the *progress* which has been made, and is still to be made, by the new methods in *diagnosis* and therapeutics.

In regard to the dilatation of the urethra, the indications are given in a great many diseases as well for diagnostic as for therapeutical purposes. I must here confine myself to naming the indications one by one, and to mentioning the results, since a more explicit discourse on the subject would take up too much room.

1. *For the diagnosis of the diseases of the mucous membrane.* Every disease, which is combined with an alteration of form and consistency of this membrane can be recognized by palpation with the finger. Endoscopy can be performed more easily on a dilated urethra. This latter method is, however, not so extensively useful for the diagnosis of the bladder as palpation. Since only a small part of the bladder can be illuminated at once, ulcers and papillary growths will only accidentally be discovered. Even with the application of magnesium-light, e. g., we have in vain attempted to find the orifice of the ureter.

But on the other hand endoscopy can be of very great use in inspecting that which has been felt, and also where small fields are to be examined as well in the female as in the male urethra.

2. *For the diagnosis of foreign bodies and stones,* which can be found even when they are very small. Heath quotes a case where he searched the bladder in vain with instruments, and afterward found the stone with his finger.

3. *For the extraction of such bodies.* Formerly we tried extraction without the control of the finger; under these circumstances the operation sometimes became very difficult, and lacerations of the mucous membrane were unavoidable. Now we introduce instruments alongside of the finger, grasp the body in its most favorable diameter without injuring the mucous membrane, and extract it after having withdrawn the finger. Lithotripsy also must be much more effective and less aggravating if the instrument is adjusted under the finger. Urethrotomy, which is connected with the greatest danger for life and for continence (*see* page 650) of urine, will probably be altogether abandoned.

4. *In cases of inveterate catarrh of the bladder, for the purpose of applying strong cautery.* (Heath.) I have frequently made applications to the inside of the bladder through

the dilated urethra, but with very unequal results. (*See* the cases, page 180, in Wildt's article.)

5. *For the cure of fissures of the urethra.* I have had a number of cases where the patients suffered from very severe spasmodic pains, especially during the frequent micturition. The urine was perfectly normal, and therefore there could be no disease of the kidneys nor of the bladder. I frequently found non-alteration in the urethra, and sometimes a small bleeding spot (ulcer). In these cases I dilated the urethra and cauterized its mucous membrane. Here also I had but varying results. In some cases there was decided improvement; in others I was compelled to dismiss the patients uncured. I have adopted this indication from Heath (see page 651). He claims to have had splendid results, and Spiegelberg (see above) cites two cases in which he achieved cures after rapid dilatation of the urethra and cauterization of the ulcerated spots.

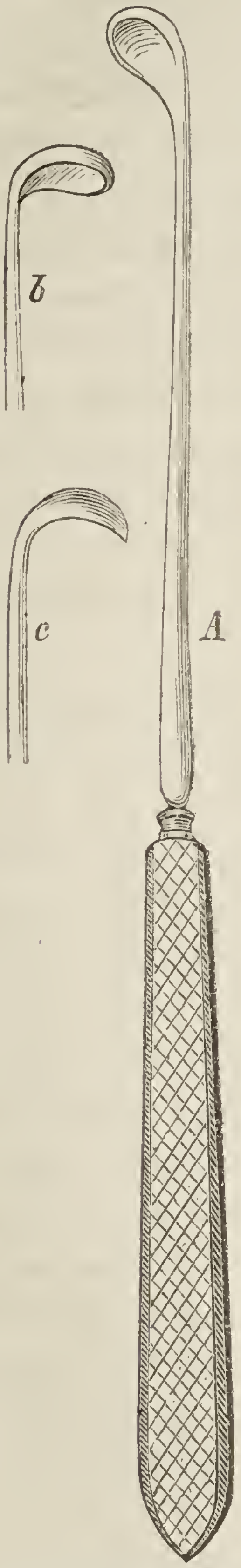
To the above indications set up by other authors, I have several additions to make, which seem to me of importance. Some of them I have already practised with the best success.

6. *For the diagnosis of defects in the vesico-vaginal septum when the vagina is closed up.* Wildt has described one case, in which I discovered a curable fistula through the urethra where kolpokleisis had been performed. I therefore reopened the vagina and cured the vesico-vaginal fistula by uniting its edges. I have had a second very similar case since Wildt's publication. Here also I opened the closed vagina, after palpating the defect from the bladder side, and cured the fistula, thereby restoring the parts to their normal state.

7. *For the diagnosis of the seat and extent of growths and tumors in the vesico-vaginal septum.* In the very frequent cases of cancer of the uterus, which have spread over on the vesico-vaginal septum, it is very important for the treatment, to know whether the mucous membrane of the bladder is infected or not. For only in case it is intact, can we extirpate the growth or tumor without opening the bladder. The palpation of the inside of the bladder combined with a digital exploration of the vagina has rewarded me with very satisfactory information in a large series of cases.

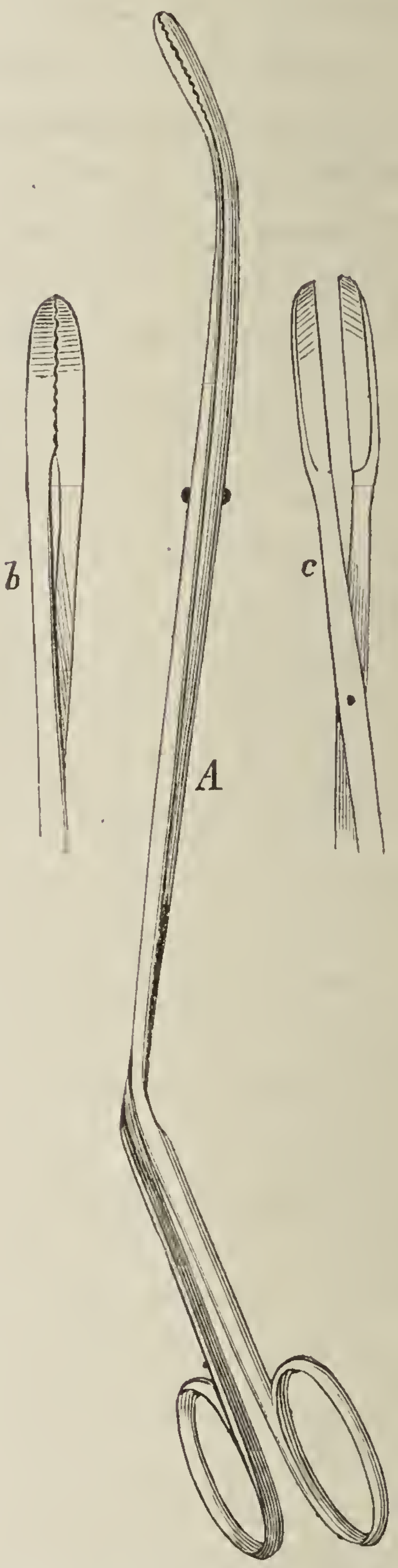
8. *For the extirpation of tumors, especially of papillomas, starting from the mucous surface of the bladder.* Wildt has described three such cases in which I scraped these growths out of the bladder with sharp spoons and tore them out with

Fig. 3.



Sharp Spoons for scraping out Growths from the Bladder.

Fig. 4.



Forceps for tearing out Growths from the Bladder.

nippers. In one case (1869) I achieved a cure which has lasted five and a half years,[1] but in my other cases there have been repeated relapses, but in the intermediate time, which always amounted to several months, the patients were seemingly in perfect health. The sharp spoons, which I have constructed for this purpose, are long-handled, the edge is very sharp and the spoon is bent at a right angle to the handle. We can not only scrape but even cut out soft tumors with these spoons by pressing the parts which are to be taken off against the edge with one finger. The nippers (tongs) are very long, S-shaped, and their branches are scissors-like, either with a smooth edge or toothed (*see* Figs. 3 and 4). I believe I am the first who has ever introduced instruments beside the finger into the dilated urethra, in order to extirpate growths which were situated in the highest part of the fundus and the vertex of the bladder. Warner, who extirpated a pediculated fungus from the bladder before me, split the urethra, and put a ligature around the stem of the tumor, which was situated close to the urethra.[2]

9. *For the discovery and subsequent extraction or excision of renal calculi from the vesical part of the ureter.* Renal calculi which are held fast in their place can be felt by the finger and be taken away by means of the bloody dilatation of the orifice of the ureter, or by incision of that part of the mucous membrane which lies over the stone.

10. *For the opening of hæmatometra, when puncture is impossible or too dangerous, between the bladder and the rectum,* for instance, when there is a congenital deficiency of a part or the whole of the vagina. For these cases Scanzoni has made the proposition to let the collected menstrual fluid off through the rectum when there is imminent danger of life. The puncture from the bladder, which I was the first to propose, and upon which Bidder has reported, after I had given a demonstration before an assembly of physicians and professors in our clinique (*Berliner Wochenschrift*, November 16, 1874), seems to me much more to the purpose. If the hæmatometra be let off through the rectum, the peritonæum is sure

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[1] *See* Wildt, as above, p. 177.

[2] *See* Bardeleben, "Surgery," sixth edition, vol. iv., p. 221.

to be injured, because it normally covers the posterior wall of the uterus and a part of the vagina. If we make a large incision, the danger of peritonitis is very great; but, if we puncture with a trocar of common size, the opening will grow up after the removal of the trocar, and there will be a relapse. On puncturing the sac through the bladder we have no peritonitis to fear, because the anterior wall of the cervix uteri, where the hæmatometra would be opened, is not covered with peritonæum (*see* Fig. 4). We can make an incision two to two and a half centimetres in length from the end of the anterior lip of the os uteri, upward, without touching the peritonæum. If there is a small portion of the vagina left, the incision can be made still longer. After a long incision, or after a cross-shaped incision, we may fairly expect a permanent lip-shaped fistula to remain.

For the formation of a fistula, Noeggerath's trocar, which is very thick, would be proper; it was constructed for puncturing ovarian cysts from the posterior *cul-de-sac.*[1] Against the proposed operation the facts could be brought up, that the hæmatometra is not so easily accessible from the bladder as from the rectum, and that disadvantages might arise from the communication of the bladder with the uterus and from the entrance of the menstrual fluid into the bladder. But after dilatation of the urethra the hæmatometra can be opened with the greatest safety under control of the finger, since the dilated uterus or a diverticulum of the vagina, if there should happen to be one present, would form a prominence in the bladder as well as in the rectum. In the past year (October, 1874), I had a case of very deep-lying hæmatometra, which I examined with several colleagues.[2] It was caused by an atresia of the upper part of the vagina. I dilated the urethra in order to be able to palpate the tumor better. We satisfied ourselves of the ease with which the operation through the bladder could have been performed. The hæmatometra was

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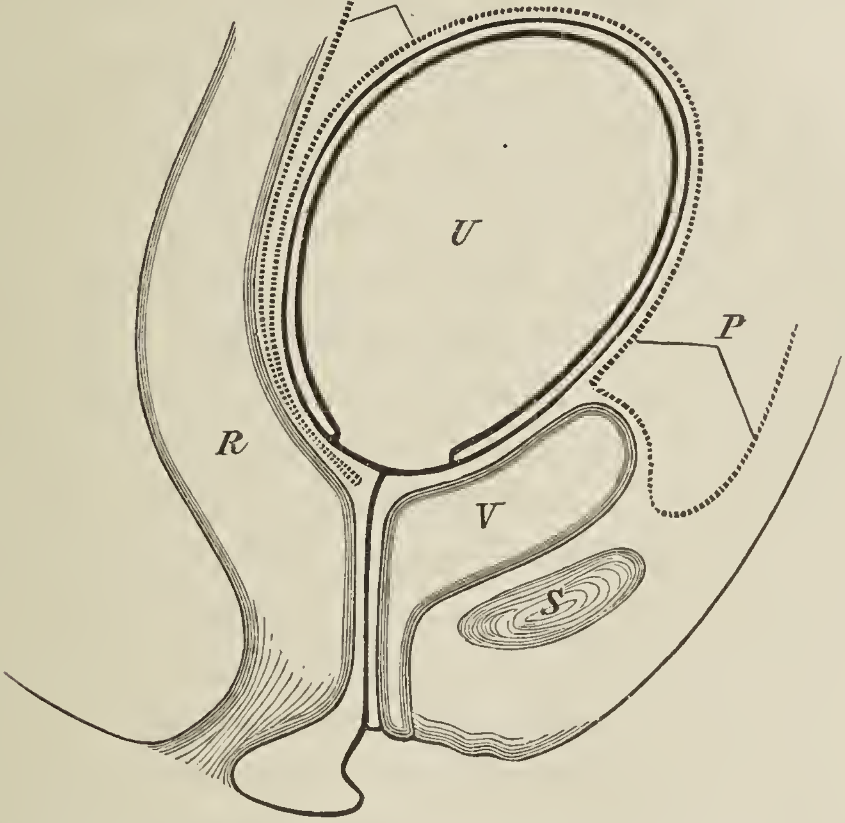
[1] This trocar cannot be introduced alongside of the finger, but upon a conductor, the point of which has been led to the tumor or has been fixed in it by the finger. Upon this the trocar can be pushed backward and the puncture performed while one or two fingers in the rectum control the operation.

[2] Among the number who examined the patient was M. Köberle (Strasburg).

Fig. 5.



Hæmatometra with Atresia of Vagina.—*R*, rectum; *V*, bladder; *S*, symphysis; *U*, distended uterus; *P*, peritonæum.

opened from the vagina because the atresia was very short (only one-half centimetre) in length, and therefore could be easily incised from the vagina. The argument that disagreeable symptoms would follow the entrance of menstrual blood into the bladder, has been actually disproved by facts. I have myself observed numerous cases in which it was necessary to close the os uteri, or to perform the transverse obliteration of the vagina, in cases of incurable vesico-uterine and vesico-vaginal fistula. In these cases the communication between the bladder and the cavity of the uterus was permanent, the patients enjoyed excellent health, and menstruation passed off through the bladder regularly with the urine.[1] Spiegelberg has recently performed an operation for hæmatometra.

11. *For the cure of colo-vesical or entero-vesical fistula by cauterizing the ostium vesicale of the fistula.* Against this

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[1] *See* my "Mittheilungen aus der chirurgischen Klinik in Rostock," II. Part, p. 235. Leipzig: published by Hirschfeld.

most distressing and eventually fatal disease, therapeutics have up to this time been powerless, and only in a few cases, by Amussat's lumbar colotomy, a more tolerable condition was created for the patient. To-day we would dilate the urethra, cauterize the edges of the fistula under control of the finger, or under endoscopic illumination (magnesium-light). The finding of the fistula could not be difficult, knowing that those fistulas have indurated borders, and are more or less radiated on account of contraction.

The indications for the vesico-vaginal section (kolpocystotomy) are more limited than those for the artificial dilatation of the urethra. This operation is indicated—

1. *In cases of very large stones, and great sensibility of the bladder.* Here lithotripsy would be far more dangerous than this section. Sims, Baker Brown, Heath, and others, have operated under the above indication. Immediately after the extraction the wound is to be closed. In case a vesico-vaginal fistula should remain, it would be operated on like any other. I myself have never had a case of this kind, but I once closed a vesico-vaginal fistula (by repeated operations), which had remained after a very large stone had sloughed through the septum (*see Archiv f. klin. Chir.*, vol. xii., second half).

2. *To allow the direct escape of urine in cases of inveterate catarrh of the bladder, with ulceration of the mucous lining.* The stagnation of putrid urine, which is the cause of ulceration and which keeps it up, will by my method be done away with. Sims, Emmet, Bozeman, Simpson (Edinburgh), Hegar, and I, have performed this operation under these conditions. My results were such that I must still consider the operation to be on trial.

In addition to the above I mention two further indications, but these require a transverse or T-shaped incision, and the subsequent inversion of the bladder.

3. *Extirpation of tumors and excrescences, which are situated so high in the lateral parts of the bladder, that they cannot be made easy enough of access through the dilated urethra alone.* After the inversion of the bladder the extirpation can be carried out with scissors and bistouries, ligatures can be ap-

plied, even the actual cautery can be used. The incision is not to be closed until the wounds on the inside are cicatrizing. Recently I had occasion to extirpate a papilloma from the vertex of the bladder, which had prolapsed into the vulva through a defect remaining after a severe delivery. I succeeded in removing it without any difficulty. After the place where the tumor had been extirpated began to cicatrize, I replaced the bladder and cured the vesico-vaginal fistula by a regular operation.

4. *Operation for colo-vesical or entero-vesical fistulas, which could not be cured by cauterization, after the urethra had been dilated.* When the bladder is inverted the cautery can be applied more radically than through the urethra; even the suture may be used to effect a closure. In this case the incision through the vesico-vaginal septum must not be closed until the fistula is healed.

These numerous indications will no doubt have convinced you of the truth of the assertion, that, by means of the described ways to the interior of the bladder, a very wide field for the successful treatment of diseases, which were formerly wholly or partially incurable, is now opened. But the advantages to be drawn from this progress are even now not exhausted. By the means described we can also perform the

Probing and Catheterization of the Ureter, thereby leveling the path for future diagnostic and therapeutic assistance in diseases of the ureter and kidneys.

Dr. Tuchmann, a practitioner in London, has lately published an article, setting forth the possibility of closing one of the ureters in the bladder, by means of an instrument very similar to a lithotriptor. He made the most of his experiments on male individuals, many of them on himself. By the temporary closure of one ureter, Tuchmann claims to be able to make a diagnosis in unilateral diseases of the kidneys; for, as long as the ureter of the diseased kidney is obstructed, only the normal urine of the sound kidney is discharged through the canula of the instrument. As a starting-point for finding the little elevation on which the orifice of the ureter is located, he uses the very sensitive front border of the fundus vesicæ at the ostium vesicale of the urethra, besides of the ligamentum interuretericum (*see* illustration) which is to be found seven lines behind the ostium, and over which you can feel the "stumble," and finally the hinder wall of the bladder, which lies five lines behind the above-named ligament. In order to obtain a sufficient quantity of urine unmixed from the kidney whose ureter is not closed, Tuchmann gives the following directions: "Let the bladder be well emptied; after waiting ten minutes introduce the instrument in order to let out the urine which may have collected during those ten minutes. Then close one of the ureter orifices for ten minutes, and collect the urine which during this time escapes through the unobstructed ureter, whereupon the instrument must immediately be taken off."

We see that Tuchmann's experiment agrees with one symptom which in nephrolithiasis does not rarely appear spontaneously, and serves for the diagnosis of unilateral disease. This symptom consists in the appearance of severe colic attacks (which are caused by the obstruction of the ureter of the diseased side), the urine, which was before mixed with abnormal substances, suddenly becoming normal. In a former publication[1] I have shown that this symptom is very reliable; that on the strength of it I have extirpated a diseased kidney, and that my diagnosis was verified by the *post mortem*. In regard to the condition of the urine, Tuchmann's compression has, doubtless, the same effect as an obstructing stone in the ureter, if it is performed carefully and long enough.

But it seems to me that just these conditions cannot be fulfilled in a sufficiently high degree for this experiment. For, although it is based upon very nice and praiseworthy anatomical and physiological researches, there are especially two points which impair the safety of the experiment, viz., the difficulty of finding one's way in the bladder, with a long-stemmed instrument, having such poor landmarks, and the short compression, lasting but ten minutes. I have tried to find the ureter in male cadavers by Tuchmann's method with Heurteloup's lithotriptor, and to compress it. Several times

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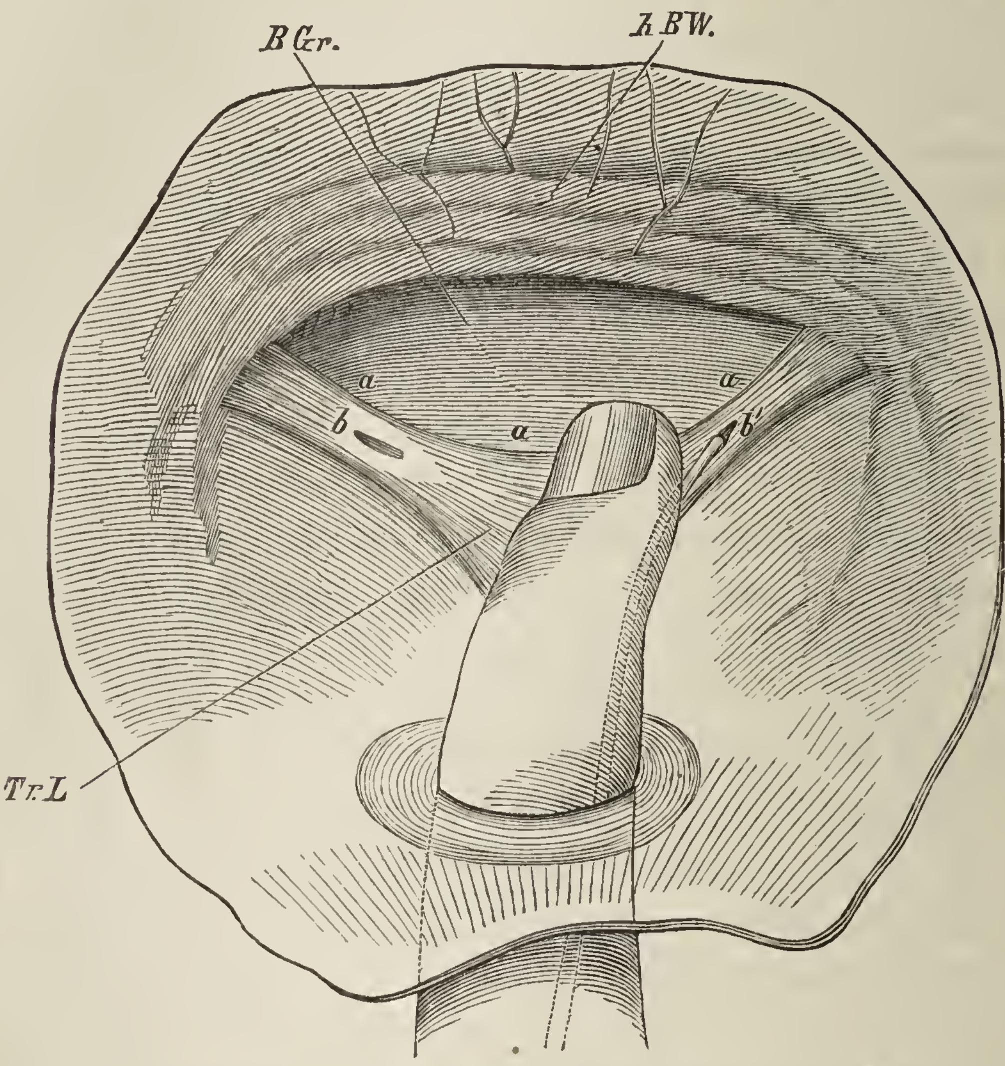
[1] *See* my lecture "On the Extirpation of a Kidney in a case of Nephrolithiasis," in the "Transactions of the Second Congress of German Surgeons" (Berlin, 1873, Hirschwald).

I effected a closure, but just as often I could not make out the fold of the bladder on which the orifice is situated (Harnleiterwulst). Several times also it happened to me, that I compressed the ligamentum interuretericum inside of the orifice, so that the ureter was not at all obstructed. On living patients I have twice tried to find the ureter in vain. I only felt an obstacle at the entrance of the bladder. Farther back I could feel nothing more; the instrument slid to the posterior wall of the bladder without the sign of an obstacle. My assistants also could not distinguish the fold. In women I have found that, even when palpating with the finger, it is often very difficult to make out the fold (ligamentum interuretericum), and that where it is badly developed, we cannot count upon a certain result of the exploration with a long-stemmed instrument. Besides that, we must say against Tuchmann's experiment, that after compressing the ureter of the diseased kidney for only ten minutes, the urine of the healthy kidney, which is discharged out of the bladder, will most likely be mixed in a small degree with abnormal substances which had remained in the bladder. The bladder can never be so completely emptied by the catheter that, even when standing, a few drops are not retained; and I have found on spontaneous obstruction of one ureter, that even by voluntary micturition, which is far more complete, the urine would be found unmixed with abnormal substances after several intervals of from one and a half to two hours. But I think this defect in the experiment could perhaps be remedied by trying a longer compression, of several hours; or, if this would not answer, after applying the instrument, by washing out the bladder, through its canula, for a few minutes, and then collecting the urine.

In the female we can do without this experiment. Here I have brought a method into use which will supplant Tuchmann's: *the probing and catheterization of the ureter from the bladder.* By the above-described dilatation of the urethra, the orifices of the ureters were of course also made accessible, so that I could enter them with probes and canulas. After I had practised on the cadaver, the experiments on the living also were crowned with success; and I believe that the utility of the method can no longer be contested. As soon as we have succeeded in putting the probe on the orifice of the ureter we can easily slide it up into the pelvis of the kidney.

FIG. 6.



SOUNDING THE URETHRA.—*h BW.*, Posterior wall of bladder; *B Gr.*, Fundus; *Tr. L*, Trigonum Lieutaudii; *bb*, Opening of the ureters; *aaa*, Ligamentum interuretericum. (The distance between the vesical opening of the urethra and the ligamentum interuretericum is too great as here represented.)

The method is the following: After the urethra is dilated in the above-described way, we search for the ligamentum interuretericum with the finger. This ligament is about one inch from the sharply-marked internal orifice of the urethra; in the middle it is usually so little prominent that it can only be distinguished by experienced explorers. Around the orifice of the ureter, which is one-half to three-quarters of an inch away from the middle of this ligament, the muscular coat of the ureter, which ends in the interureteric ligament, forms a kind of a pad, and is easy to distinguish. The orifices on these pads are very thin splits, and, since they have only very narrow edges of mucous membrane, they are imperceptible to the touch.

On account of this, the third act, viz., the introduction of the probe, is rendered more difficult. In order to effect it we must fix the "Harnleiterwulst" with the finger in that region where the orifice must be situated, and then push the head of the probe, which lies close to the side of the finger, toward this region in the direction of the ligamentum interuretericum from the inside and below, upward and outward. The handle of the instrument must be led to the opposite side and at the same time be raised up against the arcus pubis in order that the head of it may not glide off from the very steep trigonum. By slightly pushing we try to introduce the head of the probe into the orifice of the ureter. If the probe does not go into the orifice, it will be arrested by the walls of the bladder; but, if it enters, it can easily be pushed on in an upward and outward direction. The inlying finger tells whether the probe has remained in the cavum vesicæ, or whether it has really entered into the orifice. In the latter case, we feel the probe covered by mucous membrane for a few centimetres, and we can feel the borders of the orifice all around the probe. If we wish to sound the pelvis of the kidney, we have only to push the probe on in a lateral direction until at a height of seven to eight centimetres and we strike the brim of the true pelvis (linea innominata). Now it becomes necessary to move the handle of the probe to the inner face of the thigh of that side on which the ureter is probed, and to incline it so that the inner end of it is placed parallel to the vertebral column, and the head directed more toward the anterior abdominal coverings. In this direction the probe advances very readily into the upper end of the ureter and the pelvis of the kidney. If the catheter has been used instead of the probe, the urine will now ooze out drop by drop, or sometimes it will spurt out in a stream at intervals of a half to one minute. I have tried the sounding of the ureter nine times, and the catheterization eight times, i. e., seventeen explorations which were performed in eleven different women. With the sound I succeeded eight times, with the catheter seven times, in making an entrance; the performance was controlled each time by colleagues, who were present, in order to avoid mistakes.[1] In cases where I used instruments of sufficient length, I could enter the pelvis of the kidney with ease.[2] In these cases I introduced a probe of twenty-five centimetres in length to a depth of twenty centimetres, so that only a short piece of it protruded out of the urethra. Frequently I struck the orifice at the first attempt, but in other cases I had to make repeated efforts. In the two cases in which I did not succeed, I desisted after eight or ten fruitless efforts, in order not to irritate the bladder. The cases in which I did not succeed were the second and fourth. The last thirteen attempts were all successful. The operation was never followed by troublesome symptoms. So far as the certainty of introducing a probe or the catheter is concerned, I would not warrant success in the first sitting, nor in every case. However, I believe that in a great majority of the cases success would be attained. As especially useful, I recommend practice on the cadaver, because here you can control the probe while inserting it, after having cut open the bladder from above.

In the beginning of my experiments, I used probes of about ten centimetres length; now I use only those here illustrated, viz., a probe and a catheter, which are as thick as common fistula-probes, and are twenty-five centimetres in length. The handle is made movable, being only fastened by a screw, so that the instrument can be shortened or lengthened. When searching for the orifice, a shorter piece projecting will be handier; afterward, when inserting the probe into the pelvis, we must lengthen the probe as much as possible. The instruments must be made of metal which is not too flexible.[3] Very flexible metal canulas cannot be used, since the curve of the ureter, from the orifice to the edge of the linea innominata (brim of the true pelvis) cannot be straightened out by them. As yet, I have never used elastic catheters, because their introduction into the orifice appeared more difficult to me than the introduction of probe-pointed metallic canulas. They offer no advantage, since the metallic instruments can be easily introduced to

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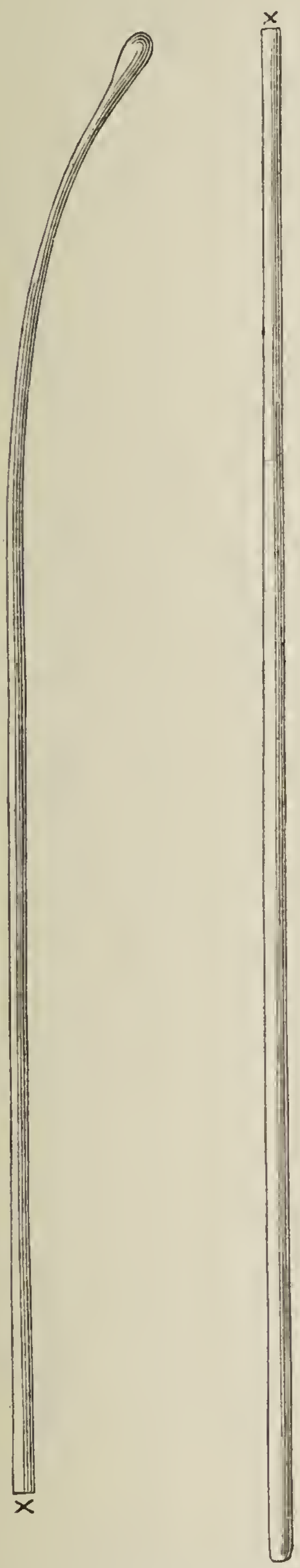
[1] Among the number who controlled the probing were Messrs. Ziemssen (Munich), Rühle (Bonn), Jürgensen & Bruns II. (Tubingen), Karell (St. Petersburg), Lister (Edinburgh), Tuchmann (London).

[2] The normal ureter is eighteen to twenty centimetres long.

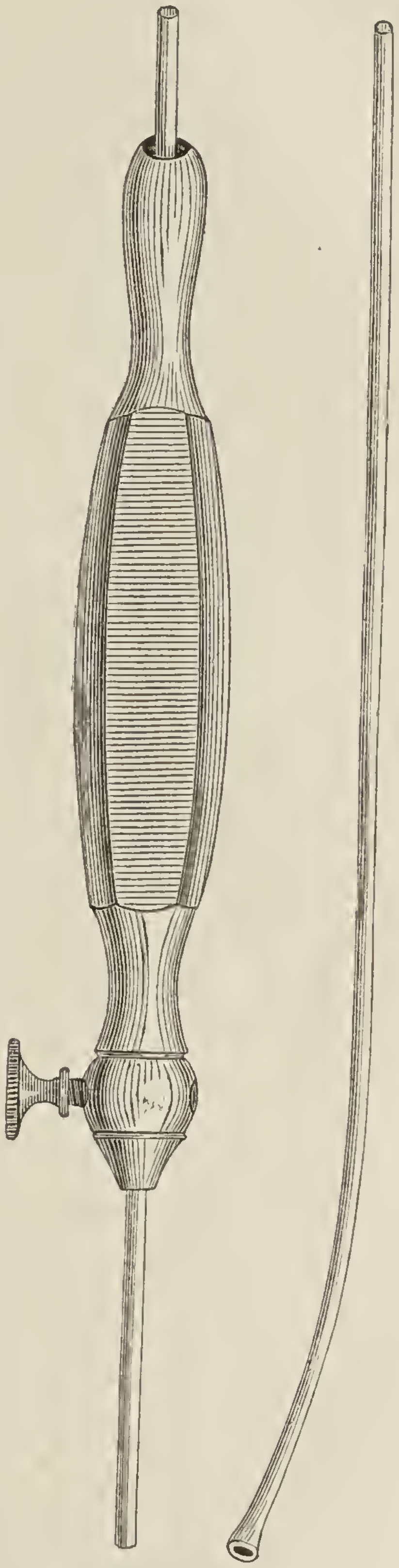
[3] All instruments for the exploration of the bladder and the ureter are kept by Mr. F. Dröll, instrument-maker in Mannheim, Baden.

Fig. 7.



Probe for the Ureters, 25 Centimetres long—Natural Size.

Fig. 8.



Catheter for the Ureters, with Sliding Handle—Natural Size.

the pelvis of the kidney by the above-explained manipulations. The probes, as well as the catheters, have a slight curve about two centimetres below the end. The purpose of this is to get at the trigonum vesicæ with greater ease, because this part falls off rather steeply when the patient lies on her back.

The probes are easier to introduce than the catheters, because they are thinner behind the knob-end, and can therefore be moved with greater ease when they lie next to the finger in the urethra. The knob of a probe slides into the orifice much easier, too, than the perforated head of a catheter. In my last six cases, however, I always used the catheter, and was always successful.

Up to the present time, I have had no occasion for using catheterization of the ureter, as a method of diagnosis, or as a remedy, for which it will doubtless be of the greatest advantage in diseases of the kidney and the ureter.

The diagnosis of these diseases will especially be promoted, because we can enter into the pelvis of the kidney with the catheter. Stones, for instance, must be palpable in the whole course of the ureter, and even in the pelvis of the kidney. The probing will most likely be very much easier in cases of nephrolithiasis, because the ureter will have been dilated by stones which have passed in former times. For the diagnosis of unilateral diseases of the kidney the catheterization undoubtedly surpasses Tuchmann's experiment, on account of the ease with which it can be performed, and its certainty of success. The anatomical way-marks are more easily to be found by the end of the finger than by Tuchmann's instrument, and the control which we have over the instrument, as regards the correct application, can here be carried out with the greatest safety, whereas, I found the application of the lithotriptor very uncertain. A particular advantage may be seen in the fact that the urine comes directly out of the kidney, and does not necessarily pass the bladder, as in Tuchmann's experiment.

The probing promises to become of great use, not only for diagnosis, but also for therapeutics. I presume that stones which we feel in the bladder part of the ureter can be extracted or cut out. If the stones should lie in the neighborhood of the pelvis of the kidney, we could perhaps push them back. Strictures could perhaps be dilated, and those hydronephroses, where the ureter is perfectly intact, and is only closed by a kind of valve at the upper end, could be emptied by the catheter.

If the catheterization of the ureter should in any case be impossible, which I think will but rarely occur, we would then bring Tuchmann's experiment into use in women for the diagnosis of unilateral diseases of the kidney.[1]

This could be done here under much more favorable circumstances, viz., after artificial dilatation of the urethra, and under control of the finger.

Postscript.

A few weeks ago Mr. Tuchmann visited our clinique while passing through Heidelberg. In order to demonstrate the probing of the ureter, I succeeded in quickly introducing the catheter into the ureter after the rapid dilatation of the urethra. Mr. Tuchmann then showed us the practice of his ureter-clamp in a male subject with a lithotriptor. We could far better find our way after the expert direction than before, but the desirable certainty in regard to the feeling of the obstacle over the ligamentum interuretericum was not yet acquired. Mr. Tuchmann has had the kindness to inform me, by letter, that he now has a safer starting-point than the stumbling over the ligament for the discovery of the ureter in the posterior wall of the bladder. It is to be hoped that this modification will soon be published.

ART. II.—*The Causes of Death after Operations and Grave Injuries.*[2] By THEODORE R. VARICK, M. D., Surgeon to St. Francis's and Jersey City Charity Hospitals.

IT must have struck the observation of surgeons engaged in hospital practice, that death supervenes in a variety of forms, and under circumstances oftentimes the most perplexing, as well as distressing, and frequently unexpected.

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[1] *Note by the Translator.*—Since the publication of this article, catheterization of the ureter has been successfully carried out in six or seven further cases, at the Heidelberg Clinique, by Prof. Simon, and lately also by both of his assistants and by the translator. It is perfectly astonishing with what degree of certainty and rapidity the catheter enters the small orifice of the ureter.

[2] Annual Address before the New Jersey Academy of Medicine, June 16, 1875.

This event has been variously attributed to shock, hæmorrhage, septicæmia, or pyæmia.

While recognizing these various causes as due to separate pathological conditions, we shall endeavor to elucidate the particular changes taking place in the blood and parenchymatous tissues, observed after death.

For the purpose of arriving at a proper discussion of the subject, I shall consider it under three aspects:

1. Influences operating upon and through the nervous system alone.
2. The combination of nervous influence and hæmostasis.
3. Influences operating primarily on the blood itself, resulting in parenchymatous changes and serous effusions.

These separate conditions, however, frequently graduate almost imperceptibly into one another to such an extent, that it is often almost if not absolutely impossible to distinguish the line of demarkation which divides the one from the other; and it is only by an observation of the case in its entirety that we recognize its varying pathological significance.

Authorities who have written on the subject have contented themselves with ascribing a fatal result to the general conditions alluded to, viz., shock, pyæmia or septicæmia, the last two of which have been included under the head of hospitalism, leaving the immediate cause of death undescribed if at all recognized.

The term shock has been employed somewhat loosely, and leaves a wide margin for theorizing and unsatisfactory discussion, as is apparent from the multitude of descriptions awarded to that condition, but few of which convey any satisfactory explanation as to the actual physical condition of the patient, simply detailing the apparent symptoms, leaving their interpretation to the greater or less sagacity of the observer.

So also as to the conditions of pyæmia and septicæmia. We are admonished, by a certain sequence of symptoms, that blood-poisoning exists, but as to the cause of its direful results, excepting one or two monographs on the subject, surgical literature is strangely deficient.

Death occurring under the second head has been entirely overlooked, so far as my investigation has gone, and it is on that account of special interest, and opens a wide field for observation.

Of the various definitions of *shock* I think that of Drs. Mitchell, Morehouse, and Keen, of Philadelphia, is more explicit, and conveys a better idea of the actual condition than any other.

Their explanation is as follows: "These very interesting states of system may be due, it seems to us, either to an arrest or enfeeblement of the heart's action, through the mediation of the medulla oblongata and the pneumogastric nerves; or to a general functional paralysis of the nerve-centres, both spinal and cerebral; or, finally, to a combination of both causes."

The phenomena resulting from this disturbance of innervation are manifested by a feeble and slow circulation, irregular respiration, indicating a diminished *besoin de respirer*, low temperature, demonstrating the existence of morbid changes in the red corpuscles, whereby their carrying power of oxygen is to a certain extent destroyed; and, if the impression has been sufficiently powerful, resulting in the death of the patient.

After death from direct or primary shock, the heart is found gorged with blood, distended to its utmost capacity, together with general engorgement of the whole venous system.

The factors leading to death at this time are, the severity of the injury, the magnitude of the operation, the loss of blood, pain, and frequently the mental depression of the patient.

To so great an extent was the latter influence recognized by a late distinguished surgeon, that he used to caution his students never to operate on a patient who labored under an apprehension of impending dissolution.

The condition of shock may continue for a greater or less period, during which the patient may sink, or, rallying therefrom, pass into a gradual and progressive recovery; or, again, after having apparently recovered from the first impression, the pulse becomes more rapid and feeble, with slight increase of temperature, and in some cases no perceptible alteration in this respect, with occasional moderate delirium, and a sense of precordial oppression, may die apparently without any assignable cause.

This condition has been variously characterized as secondary or consecutive shock, and is one which should excite our gravest solicitude. It is during this period that the foundation is often laid for an unfavorable termination.

It is a condition most deceptive, and one which often excites a sense of false security or premature hope.

It should be more properly called prolonged or perpetuated paresis of the heart, great vessels and capillaries, and is a powerful factor in those pathological changes in the blood which result in organic changes inconsistent with the continuance of life.

On this subject Mr. Savory, in "Holmes's Surgery," remarks: "It has been often observed that recovery after severe shock is not always progressive. The symptoms sometimes fluctuate very obviously. A short period of improvement in the pulse, respiration, and temperature, is succeeded by an interval of failing, and this alternation may recur again and again; each relapse, however, being less marked, until reaction is thoroughly established," or, as he might have added, more and more marked until death results.

There are instances which do occur, in which the recovery from shock, so far as we are capable of determining by any recognized process, is complete; yet, without any apparent cause, there supervenes a rapidly-failing pulse, and the patient dies.

In illustration, I would quote the case of Richard Wood, aged thirty-two years, native of Ireland, who was admitted to the Jersey City Charity Hospital, December 14, 1870, on account of compound comminuted fractures of both legs, the result of having been run over by a train of cars.

Amputation of both thighs at their lower thirds was performed by me, shortly after admission.

He rallied well from the shock and progressed favorably until December 18th, when he sank rapidly and died.

An autopsy revealed the presence of an *ante-mortem* clot, blocking up the pulmonary artery, producing almost total occlusion of that vessel, and extending into its bifurcation.

The house-surgeon had shortly before visited him and found no perceptible change, and while at dinner (about a half-hour later) was summoned to him, and found him in a dying condition.

In this case the immediate cause of death was manifestly thrombosis of the pulmonary artery, which in itself is to be considered simply as the result of some preëxisting cause ; and this leads us to inquire as to the etiology of hæmostasis and its resulting effusions and parenchymatous changes.

In considering this branch of the subject, the various topics included under the second and third divisions are so intimately interwoven, that their separation would be not only injudicious but impracticable.

The causes leading to blood-stasis at this time, and those more particularly occasioning a perpetuation of the condition alluded to, are loss of blood, the use of anæsthetics, and also *malarial* influence—each in its way producing changes in the physical characters of the blood favorable to coagulation.

We have considered the condition of paresis of the vasomotor system of nerves as connected with primary shock, and if to this condition there be added an actual diminution of the quantity of blood, while the vessels themselves are dilated, or at least incapable of contracting on their contents, it becomes apparent that a condition favorable to coagulation and stasis results.

The draining off of a large quantity of the fluid, and with it the alkaline carbonates, whose office is to hold the fibrine in solution, is productive of the deposit of the latter element in the form of thrombi and emboli.

Although the use of anæsthetics has the effect of ameliorating shock, it also contributes to the last-named result, viz., changes in the blood itself.

On this subject Prof. Hüter remarks : " Under the microscope the corpuscles can be observed to become indented, first one and then another remains hanging on to the wall of the vessel, until at last all the capillaries in the irritated region, and even the adjacent small arteries and veins, are filled with notched, red corpuscles (globular stasis). Both during the existence of the stasis, and especially during its rapid breaking up, single altered corpuscles, or large masses of them, may pass into the circulation, and, adhering to the walls of the vessels in other organs, again produce stasis (globular embolism). The occurrence of embolism from blood-corpuscles in parts where certainly no change in the vessels has occurred, gives a certain degree of support to the assertion that the cause of globular stasis is to be sought in the changed condition of the red corpuscles." He further concludes that "the administration of chloroform is bad, as in this way the blood-corpuscles are altered while in the lungs, and globular stasis may be produced in these organs."

A further result of this state of paresis of the vessels and altered condition of the blood-corpuscles is a slow circulation, which in itself is favorable to coagulation, especially should there exist any asperity in the course of the vessels, or, as sometimes occurs from heart-strain, valvular lesion of the heart, which might act as a nidus for fibrinous deposit.

A nucleus having been formed, let it be ever so slight, the subsequent accumulation goes on with increasing rapidity and consequent stenosis of the vessels.

I have observed that patients who have imbibed malarial poison, whether from a previous residence in fever districts, or from having been subjected to a sudden outbreak of the disease, are particularly liable to this mode of death.

Elias Colyer, aged forty-one years, native of the United States, was admitted to the Jersey City Charity Hospital, July 5, 1873, on account of compound comminuted fractures of both legs, the result of a railroad accident. Amputation of both thighs at their lower thirds was performed by me.

The patient progressed favorably. The ligatures came away on the tenth and twelfth days, and the wounds by the sixteenth day had healed by first intention to four-fifths of their extent.

What portion remained to heal by granulation was secreting a moderate amount of laudable pus. Appetite good; pulse, temperature, and respiration, normal.

His extremely favorable condition was such as to excite remark among the house-staff and attendants.

About the seventeenth day a trench was dug through the hospital-grounds, immediately under the windows of the ward occupied by the patient, giving rise to most offensive effluvia.

The result was an outbreak of intermittent fever, which attacked a number of patients, including the one in question, as well as the resident physician.

The patient was seized with a prolonged chill, with imperfect reaction. On the third day there supervened another chill, after which the patient sank, with rapid pulse and precordial oppression, and died on the twenty-first day after the operation.

On making a *post-mortem* examination, there was found a firm *ante-mortem* clot, involving the pulmonary artery from the right ventricle to beyond the bifurcation. The lungs were found congested, but every other organ healthy.

Superadded to the effects of shock, as previously considered, the blood-vessels are in a state of semi-paresis, during a paroxysm, while the condition of the blood, as shown by analysis to exist under the circumstances, renders thrombosis particularly liable to occur.

James M——, admitted to St. Francis's Hospital, Jersey City, on account of necrosis of the tibia, for which he underwent amputation of the thigh at the lower third. Five days after the operation he was seized with chill, followed by fever and sweats, which assumed a tertian type. This continued until the twelfth day, when he died. During the last twenty hours the pulse ran up to 130 and 140 per minute, with great precordial oppression.

An autopsy revealed a firm *ante-mortem* clot of the pulmonary artery, and hæmorrhagic infarction of the lungs, while every other organ was normal. The stump had healed to about one-third its extent by first intention, and the remainder was granulating healthily, with a secretion of laudable pus.

At this time there were no cases of erysipelas or pyæmia in the hospital, but a number of cases of malarial fever, some of which had assumed a typhoid type.

It seems impossible to associate these cases with pyæmia or septicæmia in their ordinary acceptation, unless we adopt the view that malaria consists of organized vegetable germs (malarial spores), which at the present day exist more as a matter of theory than as an established fact.

He had suffered at stated periods for several years from intermittent fever. A portion of the time he resided in Illinois, in a region subject to the influence of paludal emanations; and at periods, when not suffering from the more characteristic evidences of the poison, was a victim to neuralgia in its protean forms, indicating a condition of constitutional cachexia due to the morbid influences to which he had been subjected.

It has been a matter of observation with me, that deaths occurring with similar attendant symptoms have been more frequent during seasons in which malarial fevers have prevailed. Of influences operating directly on the blood in determining its coagulation, none equal the admixture of purulent or septic material. Whether its reception be due to absorption, or the result of phlebitis, or whether it be of animal or vegetable origin, its effect on the circulating fluid is the same.

The experiments of Mr. Henry Lee are especially conclusive on this point, and they are of such a nature, and so philosophically carried out, as to establish the fact beyond a question.

The admixture of septic material with the blood produces its effect primarily on that fluid, while parenchymatous tissues are affected secondarily. The symptoms attending this contingency are as a rule so pronounced as to clearly indicate the changes taking place, and are such as are described in the various text-books under the heads of pyæmia and septicæmia.

Of the results following thrombosis and embolism, the most constant are those manifested in the lungs, in the forms of hæmorrhagic infarction, abscess, and serous or sero-purulent effusion in the pleural cavities.

Says Niemeyer, "Hæmorrhagic infarction consists in a capillary hæmorrhage, confined to a small and sharply-defined section of the lung, and often bounded by the limits of a single lobule. The blood is effused partly within the cavity of the vesicles and terminal bronchi, and partly lies in their interstices between the fibres of elastic tissue, by which the air-cells are entwined.

"The abrupt boundary of a hæmorrhagic infarction is caused by the fact that the bleeding comes only from the capillaries pertaining to a single twig of the pulmonary artery. The range of the capillary system of an artery depends upon its size; hence hæmorrhagic infarctions which arise within the capillary of a large branch of the pulmonary artery are far more extensive than one which forms about a smaller twig."

Ludwig has shown that "tension within the artery below the point of constriction is diminished, since the liquid flowing through a narrow tube loses more of its impetus than in flowing through a wide one.

"But we must not infer from this that, when an artery is constricted, the contents of its capillaries are lessened, and that the parts which they traverse grow paler. The sluggishness of the stream thus produced in the capillaries rather has the effect of allowing the heavy blood-corpuscles to collect and become crowded together: now, as two or more blood-corpuscles, if brought into contact, are apt to become permanently adherent, the blood itself can form a plug capable of closing the capillaries. Such an occurrence, which converts the capillaries into blind appendices to the artery, must cause an increase in its internal pressure."

Hence we see by the foregoing quotations that, as the amount of infarction is governed by the size of the branch embolized, we should expect that, where the main trunk is obstructed by a thrombus, the whole lung should become congested, which is the fact.

In December, 1868, M. Prompt announced to the Société de Biologie that the kidney became hyperæmic when the renal artery was tied.

M. Moreau obtained similar results in the case of the spleen and intestines after ligature of the splenic and mesenteric arteries.

The experiments of M. Brown-Séquard, made on dogs and Guinea-pigs, show that even when all or nearly all the arterial supply of the kidney, the spleen, or a portion of the intestines, has been cut off, the district supplied by the arteries ligatured becomes remarkably congested; and he obtained the same result in the case of the liver on tying the portal vein.

This result is attributed by M. Séquard to paralysis of the vaso-motor nerve-filaments; and, further, that if the vaso-motor paralysis exists in any organ, and if the *vis a tergo* of the blood have ceased in it, in consequence of the interruption of the blood-current in the arteries, the diminution of resistance in the vessels of this organ will cause the blood to regurgitate thither through the veins and produce congestion.—(*Lancet*, 1872, p. 268.)

In illustration of facts just alluded to, I quote the following cases, omitting for obvious reasons the detailed report of each, simply contenting myself with a rapid sketch, and an account of the *post-mortem* appearances:

Dr. J. E. Culver reports the case of G. L. D., aged fourteen years, who sustained a compound fracture of the lower portion of the leg, which involved the ankle-joint. Amputation was performed at the junction of the lower and middle thirds. Symptoms of septicæmia supervened, which gradually increased until the patient died, on the eleventh day after the receipt of injury.

"*Sectio Cadaveris Sixty-seven Hours after Death.*—The body had been well preserved in an ice-coffin. It showed cadaveric rigidity, dilated pupils, moderate emaciation. The skin was a bloodless white, faintly mottled over the thorax and abdomen with patches of *post-mortem* icterus and purpura. The thoracic and abdominal cavities were exposed by the customary incisions. The cranium was not opened. Each pleural sac contained bloody serum, estimated at one-half pint; probably the greater part of it a *post-mortem* exudation derived from *ante-mortem* œdema of the lungs. No evidence existed of any former pleuritic or pulmonary disease. The pericardium was healthy and contained no excess of fluid. The heart was normal in position, size, and structure. Both its right and left cavities were, however, occupied by large decolorized thrombi, or strong bands of uneven breadth and thickness formed of fibrillated deposits of fibrine, which proved to be very firmly attached to the valves, the chordæ tendineæ and columnæ carneæ by contact surfaces and numerous tendrils. These thrombi partly filled the auricles and ventricles, and extended continuously through the auriculo-ventricular orifices, and through and beyond the ventriculo-arterial, and terminated by free extremities, the one in the aorta, the other in the pulmonary artery. They doubtless in divers ways impeded the circulation of the blood during the last days of the boy's life, and determined the time and manner of his death ; for, as they grew in size, and their offshoots multiplied in number, and shortened their several points of attachment, they more and more choked the blood-streams, pinioned the valves, and in their ever-tightening grasp constricted both the systole and diastole of the heart. The very small quantity of blood that escaped from the heart and severed vessels was of venous color, and did not coagulate on exposure to air (hyperinosis, venosity, and quantitative anæmia). No *post-mortem* clots were seen. The liver was slightly softened. It was normal in size, shape, and position, and to the naked eye appeared healthy in structure, except in the site of a secondary abscess, the result of infarction, which was situated midway on the anterior border of the lower surface of the right lobe, and which had by ulceration perforated its peritoneal covering. This abscess may have ruptured after death. The liver was not sliced thin and examined minutely throughout, and therefore other infarctions may possibly have existed therein which escaped observation. The spleen was large, soft, easily torn, in parts almost diffluent. The kidneys were normal, but the infundibula of both contained collections of pus, or muco-pus, not of embolic origin."

Dr. B. A. Watson reports the case of Michael Noonan, mercantile traveler, who was admitted to St. Francis's Hospital, Jersey City, December 30, 1874, suffering from a compound comminuted fracture of the right foot and lower portion of the leg, the result of a railroad accident.

The man was of intemperate habits, and was in a state of intoxication when brought to the hospital.

Amputation was performed below the knee, after which he rallied well. Fifteen hours after the operation there supervened a rather profuse hæmorrhage, necessitating the reopening of the stump. It was found necessary to tie one small arterial branch, but the greater part of the blood lost was caused by a general oozing from every part of the flap. The hæmorrhage was subsequently controlled by the application of ice. The patient, notwithstanding the arrest of hæmorrhage, and a liberal administration of stimulants, etc., continued to sink, and died on the eighth day.

An autopsy revealed the presence of large, well-formed *ante-mortem* heart-clots, more especially on the right side; also thrombosis of the pulmonary artery and numerous points of infarction (in the lungs), of the hæmorrhagic variety. Nothing else was observed of special importance, unless possibly the softened and flabby condition of all the muscles, and the very large amount of adipose tissue everywhere present.

I am indebted to Dr. F. H. Whittemore, *interne* to Jersey City Charity Hospital, for the following report of the case of "Mary Burns, aged about seventy years, who was admitted to the hospital Christmas-evening, 1874, suffering from a compound comminuted fracture of both tibia and fibula in the lower third, involving the ankle-joint. Her condition was such as to forbid a primary amputation being performed; consequently, not until Thursday, January 14, 1875, three weeks after the injury, was her limb amputated. The amputation was performed in the upper third of the leg, by the short anterior and long posterior flap method. The patient survived the operation well, and got along the first two weeks subsequent to the operation finely—all the ligatures having been removed, and the stump granulating well. About the beginning of the third week, however, she began to fail, as shown by frequent attacks of syncope, during which the heart-beat was very laborious and feeble. Her temperature rose at times from 100° to 103° during the remainder of her life, with pulse about 125 per minute. On Tuesday, two days previous to her death, she spat up a good deal of bloody-looking matter, which resembled very much the prune-juice expectoration of pneumonia. On auscultation, broncho-vesicular respiration, with mucous *râles*, was all that was heard—the examination not being very thorough, however, on account of the feebleness of the patient. She died on Thursday, February 4th, three weeks after the operation.

"*Autopsy Fifteen Hours after Death.*—Exterior: body well nourished, and stump nearly cicatrized. Lungs: on opening the left pleural cavity, it was found to contain a small amount of serous fluid, with a great deal of recently-deposited lymph on both the visceral and parietal pleura. The left lung weighed thirty-three ounces. In the pulmonary artery leading to it a large *ante-mortem* clot was found, which extended into its subdivisions. In the arteries leading up toward the apex, numerous emboli were found, the apex itself being transformed into an immense embolic abscess, which contained a good deal of sanious fluid and necrotic tissue. Near the base of the same lung, and in a portion supplied by one branch of the pulmonary artery, was a patch of hæmorrhagic infarction. The infarction was commencing to disintegrate, as, on cutting through it, a serous-like fluid exuded. Right side: pleura healthy. Lung normal in weight. A *post-mortem* clot occupied the primary artery. In one of its subdivisions an *ante-mortem* clot was found. At the bifurcation of one of the arteries going up toward the apex, an embolus existed, which extended into both its branches, producing infarction in the tissues supplied by them. Heart normal in size. A large, firm, *ante-mortem* clot was found in the left side, firmly entangled among the trabeculæ, so that it was with difficulty removed. *Post-mortem* clots were found in the right cavities. Valves healthy. Other organs not examined."

Having thus rapidly considered the various causes leading to a fatal result, it is well to consider the actual condition at the time of death

1. As regards the nervo-motor system—*asthenia.*
2. As regards the blood-vessels themselves—*stenosis.*
3. As regards the condition of the blood itself—*extreme hyperinosis* and *hydræmia.*
4. As regards respiration—*a failure of blood-changes in the lungs.*
5. As regards parenchymatous tissues—*engorgement, œdema, infarctions,* and *secondary abscesses.*

It will be manifest that the limits of a single paper do not admit of more than a superficial review of the subject, and I hope to receive indulgence for the imperfect manner in which the topic has been discussed. I trust, however, that it may have the effect of arousing a spirit of inquiry, and that the subject may receive the attention and investigation it deserves.

Art. III.—*Galvano-Puncture; with a Successful Case of Operation by Electrolysis in a Glandular Tumor.*[1] By L. H. Cohen, M. D., Quincy, Ill.

On June 7, 1875, Mr. F. L., a young man eighteen years of age, was sent to me by my friend Dr. H. W. Kendall, of this city. Mr. L. had an enlargement of the right sub-maxillary gland, which he had first noticed nearly two years ago; it had increased in size, until, at the time he visited me, the tumor was about as large as a small hen's-egg; just anterior to it, almost immediately below the symphysis of the jaw, was a small cystic tumor, about the size of a gooseberry. Mr. L. told me that he had consulted several physicians in regard to the possibility of removing the "large tumor;" none had, however, afforded him any relief, and none had expressed any desire to operate upon it with the knife, except one practitioner, who informed him that it was a *wen*, and when it became sufficiently *firm* he would cut it out, as he had cut out hundreds in the same place. For reasons not given, this operation was not performed.

I considered the case an excellent one for electrolysis, but, as this could be employed at any time, I determined to try first the direct galvanic current, of as great intensity as the patient could bear.

Accordingly, I applied a sponge of sufficient size to cover the glandular tumor, connecting this with the negative electrode, while a smaller sponge, connected with the positive, was applied to the little cyst; the current from sixteen cells of an Elias Smith zinc-carbon battery was allowed to pass, and gradually increased to thirty-two cells, the patient with great difficulty bearing this for a few minutes. As continued action was desired, I reduced the strength of the current until sixteen cells were again reached, which the patient bore for half an hour. Dr. Kendall had recommended that a powerful current be passed twice a week, and on the 10th the patient came again to my office, when I was able to increase the number of cells employed to twenty-four. As I was of opinion that, to do efficient service, the battery must be employed more frequently, I directed the patient to come every day, and on the 12th (the fourth sitting) he was able to endure thirty-two cells for twenty minutes. This treatment was repeated on the 14th and 16th, and the result had been that the glandular tumor had become much softer, and perceptibly though but slightly reduced in size. I had explained the operation of galvano-puncture to the patient, who was quite an intelligent young man, and he seemed much pleased at the theory and its novelty, and anxious to have it tried. No change had taken place in the appearance of the cystic tumor. On June 17th, Dr. Wm. A. Byrd administering the ether, the patient was fully anæsthetized, and I introduced two fine sewing-needles connected with the negative electrode from thirty-two cells, one needle transfixing the anterior extremity of the glandular swelling, the other being passed through the cystic tumor; the positive was connected in the same manner, by soft iron wire, with a similar needle thrust into the posterior or, rather, the external extremity of the glandular tumor. As soon as the connection was made, hydrogen gas rushed in a torrent of foam from the negative needles, the cystic tumor *vanished instantaneously*, and the other—the main enlargement—grew rapidly less; in two minutes it commenced to blacken, and the needles were removed; the operation being completed in two minutes and a quarter. From forgetfulness, I had neglected to caution the patient not to eat any dinner (the operation took place at four o'clock in the afternoon); he had eaten a very hearty meal, and the consequence may be imagined: he had the most violent and persistent vomiting, and became quite cold and faint. He was laid upon a lounge in the adjoining room, and with great difficulty I forced him to swallow a little brandy, as he was a strict observer of temperance, and, though of German parentage, had never, I believe, drunk even a glass of beer or wine. When he had become somewhat restored, I applied a piece of wet lint to the eschar, for such it must be called, and took him home. The following day he called at the office, when I applied a current from thirty-two cells, through a sponge connected with the negative, to the raw surface now exposed, keeping it in contact for about three minutes ; this had the effect of breaking up the slough and dissipating the grisly-feeling border surrounding it. Flaxseed-poultices were now substituted for the water-dressing, and, in less than forty-eight hours from the time the electrolysis was performed, the mass had sloughed out, leaving a clean, healthy-looking, though deep wound, extending under the angle of the jaw, and not a vestige of the submaxillary gland to be seen. In appearance, it was as though the tumor had been very skillfully dissected out, and at the bottom of the wound the outlines of the muscles of the triangular space could be distinctly recognized. A dressing of lint saturated with glycerine was applied for a few days, when, granulation proceeding finely, with moderate suppuration, this was changed for an ointment composed of carbonate-of-zinc-cerate, containing a small proportion of acetate of lead. For washing the wound, and preventing any appearance of gangrene, I gave the patient a small syringe and a wash consisting of olive-oil soap, carbolic acid, glycerine, and water; by using a syringe instead of a sponge, cleansing could be more thoroughly effected without disturbing the granulating surface, and avoiding all possibility of infection. On July 24th the only wound visible was a small abrasion of the skin about the size of a finger-nail, the excavation caused by the removal of the mass having filled up evenly, the tissue being soft, and not the slightest contraction or puckering visible. The patient has not at any time complained of pain or inconvenience since he recovered from the effect of the anæsthetic, and has been steadily employed at his work in a large carriage-manufactory in the city.

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[1] Read before the Medico-Pathological Society of Quincy, Ill.

Although the employment of the galvanic current in surgical operations, as well as for its therapeutic effects, has been advocated by various authors and practitioners for more than a quarter of a century, it is only within a comparatively recent period that this important agent has enlisted among the profession the interest and attention that it merits. It may be said that more extensive experiments and consequently more extended discoveries have been made in this application of one of the great forces of Nature to the wants of the physician and the surgeon, during the past five years, perhaps, than in the previous seventy-five years that embrace the history of galvanism. So short a period is, at best, and with every advantage, scarcely sufficient to thoroughly test the value of a principle by whose agency results may be and in some cases have been achieved, of so great importance as to almost warrant the idea of a revolution in many methods of medical and surgical procedure. But, unfortunately, the practice of electro-therapeutics had fallen into the hands of an army of quacks, ignorant of all medical or other science, illiterate, uneducated, and of course unscrupulous, and the important subject was allowed to remain almost entirely in their possession for a number of years. The result was inevitable: an agent so powerful, used without discrimination or judgment, employed by such pretenders for the relief or cure of all the ills that flesh is heir to, was of necessity productive of more evil than benefit. The number of educated physicians employing electricity as a part of the materia medica was not sufficient, and the range of observation not sufficiently extended, to counterbalance the mischief done, and so both profession and laity were inclined to regard with caution, if not with skepticism and distrust, the advances made by men of undoubted scientific ability and professional reputation, but whose statements of results actually obtained were apt to be regarded as somewhat tinged with enthusiasm. Thanks, however, to the labors and researches of scientific medical men in this country and in Europe, the subject of electro-therapeutics has now assumed an importance and obtained recognition as a valuable and legitimate addition to the armamentorium of regular practitioners, and the natural hesitancy with which all new ideas and theories must be received in an art founded and based upon experiment and observation, is giving way before the stubborn collection of facts resulting from the work of many faithful heads and hands.

Ever since and even before I commenced the study of medicine, it has been my firm belief that electricity could be made a valuable remedial agent, especially in the treatment of diseases of the nervous system, and notwithstanding the improvements made in instruments for generating the electro-magnetic or faradaic current, and the attention which in consequence they drew from the old-fashioned Wollaston and Cruikshank batteries, I felt convinced that, with apparatus conveniently arranged for its proper development, galvanism would ultimately be restored to its legitimate rank and take the foremost place when electro-therapeutics should become a practice. I believe that nearly all electro-therapeutists now hold this view. Not but that the faradaic current is of great value, and for many cases indispensable, but where the direct therapeutic action of electricity on the tissues is required, it is perfectly useless. Here we must employ the current obtained by chemical action, for the result we wish to obtain is caused by chemico-physiological action in the portion of the body subjected to the influence of the galvanic current; in one word—electrolysis. Those who have framed the vocabulary of terms for the new science have, however, reserved this term for that mode of employing the current which I have detailed in the case which forms the basis of this article, and to which I must now return, with an apology to my hearers for having wandered so far away; at a future time I hope to present a summary of cases treated by the *therapeutic* administration ot galvanism.

What are the advantages in operating upon such a case as the one before us, by means of the electrolytic action obtained by galvano-puncture; what advantage is gained over exsection by means of the knife? It is my humble opinion that there are very few surgeons who would hesitate to adopt any means of procedure that appeared likely to result successfully, by which a dissection could be avoided in a region containing so many important vessels as the submaxillary triangle, and especially when the object of the operation is to remove a growth almost entirely filling up this important space, having imbedded in its substance one artery of rather large size and in close relation to several others, small, it is true, but so tortuous and frequently presenting so many anomalies that in any case the operation would be attended with sufficient hæmorrhage to be very troublesome, at least. The degree of caution required would also of course render the operation a slow and tedious one, with all the disadvantages of prolonged exposure of the wound to the air during its progress. By operating with the galvanic needles, as we have seen, the operation was begun and finished in two minutes and a quarter, without the loss of one drop of blood (the puncturing of the skin excepted) and the action of the current being, to all intents and purposes, a subcutaneous dissection. The advantages gained, therefore, are rapidity, safety, entire freedom from hæmorrhage, protection from the air, with all the advantages gained by such a combination of favorable circumstances, while the immediate effect of the operation is to convert the tumor into a slough, which with the assistance of a poultice is thrown off in a few hours or days. It is just to surmise that a similar method of treatment is equally applicable in the case of benign glandular tumors situated in other regions, and especially where they are of extreme vascularity. Indeed, we are not confined to the extirpation of benignant growths; we have good authority for the belief that even cancer has had to yield before the influence of this truly "magical fluid."

With regard to cystic tumors, I feel fully warranted in saying that, in the next case which may present in my practice, I shall certainly employ the galvanic current and needle to effect its removal, for it would seem that this class of growths is one that can be made to disappear without sloughing, and consequently without scar—rather an important consideration sometimes with ladies and others who are particular about their good looks. I must, however, confess that I was somewhat startled at the sudden and mysterious "flitting" of the cystic tumor in the case of Mr. L.; it was somewhat more than an exemplification of the statements made by Dr. David Prince, on page 42 of his valuable "Report on Galvano-Therapeutics," in which he describes the behavior of ganglions or weeping sinews when transfixed with the electrolytic needle.

Before concluding this article, I must say a few words concerning the battery with which the above-described operation was performed, and which I have for some months employed in my practice. I desire to do this, because I believe the apparatus should be better known to the profession than it seems to be. It is called the "Normal Battery," and is constructed by Dr. Elias Smith, of Normal, Illinois. For simplicity of construction, and the ease with which it can be kept in good working order, it is not to be excelled. That which I have consists of thirty-two pairs of zinc and carbon plates, arranged in four sections; the cups are quinine vials, and the methods of connection and immersion are such that any portion or all of the series may be employed at a moment's notice. The entire battery may be taken apart, cleaned and put in action again in a couple of hours, although I have not found this necessary oftener than once in two months. The exciting fluid is a saturated solution of bichromate of potash in sulphuric acid diluted with five or six parts of water, and the action is powerful, steady, and constant. It is an efficient battery also for electro-chemical experiment, and by means of an extra set of connections can be used as a galvano-cautery. Many other persons besides myself have been surprised at the remarkable power displayed in a small compass which this battery is capable of exerting. As a proof of its extensive range of quality in current, I may state that, in the treatment of nervous affections, I have employed it with success in neuralgia of the ophthalmic nerve, and in paralysis of the lower extremity, from impaired nutrition of the great sciatic, in the one case employing four, in the other from twenty-four to thirty-two pairs. In paralysis, however, I believe that the best results can be obtained by uniting or alternating the galvanic with the induced or faradaic current, but I shall treat more extensively of this subject in a future paper.

One word more. I have alluded to the successful treatment of cancerous growths by means of electrolysis; on page 46 of the Report I have already mentioned, Dr. Prince makes use of the following language: "It may not be amiss to say that these brilliant successes ought not to lead us to the expectation of curing all cases of cancer. It is enough to know that a remedy has been discovered which has a curative influence upon the disease."

From an authority whose labors, researches, and skill, have made him an authority in this and other branches of surgery, such words convey more than a valuable hint; they are, to my mind, at least, very pointed and pregnant with meaning. Borne out and based upon the results of experience and careful observation, they afford a clew that the true practitioner, watchful, studious, and keen to seize his opportunity, when it presents, cannot fail to recognize; and, if it be followed, the admonition will not have been in vain, nor will the prophecy come to naught.

Art. IV.—*The Treatment of True Membranous Croup.*

By W. H. Vail, M. D., Cornwall-on-Hudson, N. Y.

My experience during the last spring, with four very severe cases of unmistakable membranous croup, has led me to consider it a disease as amenable to treatment as dysentery or remittent fever. The symptoms in all the cases being so similar, and coinciding so exactly with those attributed in Dr. Flint's practice to laryngitis with exudation of lymph, I will not detain you with the recital of them—only referring to them as occasion may require in connection with the treatment. Upon seeing a patient suffering from this disease, I immediately give him a full dose of calomel, from fifteen to thirty grains, to be repeated in six hours if the bowels have not operated. It allays the fever, and acts kindly on all the secretions. When this effect is desired in any disease, large doses must be given, according to Dr. Lente's plan. All of the popular hue and cry against this valuable medicine, and all of our bad results and disappointments from its use, have come from our giving it in too minute doses. It matters very little how much you give, if you only give enough to operate on the bowels, or follow it with something which will assist it to operate. At the same time I order the patient to be kept day and night in the kitchen, or a room which can as readily be kept heated at a temperature of 90° Fahr., and the air loaded with moisture till it runs down the windows as we see it on washing-days. To make this measure effective, Dr. Sayre's plan must be followed, of keeping the temperature at 90° or 95° if necessary, as I found it in one case. You will be surprised and gratified in a few hours at finding your patient breathing easily and sleeping quietly, to whom, before, each breath was a struggle, and there was no such thing as sleep. You must impress upon the friends the importance of maintaining the heat and moisture. If the thermometer falls to 80° or 75°, the old trouble will return. In one case I kept the heat at 90° for three days and two nights before it seemed safe to let it subside.

These two remedies (calomel, and heat and moisture) seem to stop at once the further formation of the membrane, to loosen what is already formed, or cause it to be absorbed. They acted like a charm with three of my little patients—the fourth was moribund when I first saw him, and died in less than twenty-four hours, asphyxiated. No attempt at tracheotomy was made in his case, as the membrane evidently extended to the bronchioles, and no operation could relieve him.

To cure any sore-throat that may exist, I dissolve half a drachm of chlorate of potash in a glass of water and give a teaspoonful every two hours. I give it in all cases, for it is a tonic, and acts well on the membrane, wherever it may be.

To maintain the strength I rely on quinine, and I find the following simple prescription the most palatable and acceptable to the stomach:

℞. Cinco. quiniæ, ʒ ss
Syr. simplicis, ℥ ij
M. Pulverize and triturate thoroughly. From a half to one teaspoonful every four hours.

Of course, milk, eggs, milk-punch, beef-tea, lemonade, flaxseed-tea, etc., enter as nourishment into the treatment—to be varied as the strength and taste of the little ones may require.

That these were cases of true croup, as distinguished from spasmodic croup, there is no doubt in the mind of the writer; and is proved by their symptoms not being those of any other disease, and their clinical history corresponding with what the best authors teach us to look for in that affection. The membrane was visible on the tonsils in two cases, and existed, I believe, in the larynx and trachea of the remaining two, but did not happen to extend to the throat, or was prevented from extending by the remedies used. Though I watched, and asked the friends to watch, for any thing in the shape of membrane that might be coughed up, nothing of the kind was seen. Whether the membrane was swallowed, or dissolved or absorbed by the remedies, I do not pretend to say.

As to *sequelæ*—one was unable to speak above a whisper for a fortnight, and another is now gradually recovering his speech after a lapse of nearly two months. No medicine was given to cut short this sequel, time alone being relied on. No originality as to remedies is claimed by the writer. He only hopes others may be gratified with the good results which followed his adoption of this plan of treatment, and that it may prove a means of reducing the fatality of this so fatal disease. If I meet with further success in this direction I shall certainly report it, and hope others will also.

Clinical Records from Private and Hospital Practice.

I.—*Cases illustrating the Value of Salicin as an Enteric Tonic and Astringent, with Remarks.* By W. H. Vail, M. D., Cornwall-on-Hudson, N. Y.

Case I.—In January, 1873, I was attending T. A., aged eight months, who was suffering from chronic diarrhœa, a sequel of an attack of catarrhal fever (weakness of the bowels being hereditary in the family). He had from six to ten passages in the twenty-four hours, most variable in character and frequency; flesh flabby and anæmic. He was steadily failing, though the whole list of astringents and opiates had been tried. They would only check the diarrhœa for a day or two at most. As a last resort (quinine irritating the bowels), salicin was given in half-grain doses three times a day. He began to improve so rapidly under its use, that in three days opiates were discontinued as no longer required to control the bowels, and salicin was the only remedy administered. He continued to take the salicin for over six weeks. In fact, as the little one grew fond of his powders, and as he continued steadily to improve, he was allowed to have them till the system denoted its satiety by rejecting them from the stomach. He has had no bowel trouble since.

Case II.—In October, 1873, I was called to see a child, aged seven months, who had been suffering from marasmus for over two months. She was in the last stage of that wasting disease—crying or moaning piteously almost incessantly, sleepless, not able to retain even the smallest amount of food in its stomach; bones literally devoid of flesh, and facies, characteristic of that disease, not to be forgotten when once seen. The bowels moved from ten to fifteen times in twenty-four hours, and with no regularity as to time or character.

I gave the friends the most unfavorable prognosis, telling them the child could not live more than a day or two at most. I left small doses of pepsin, and an opiate to control, if possible, the bowels and vomiting. The next day I commenced with salicin in half-grain doses, three times a day; also had a liniment composed of equal parts of cod-liver oil, glycerine, and tincture of opium, rubbed for five minutes, three times a day, all over the abdomen with a warm flannel, to be followed by a flannel band saturated in the same. Diet, very small quantities of pure milk from one cow every hour. The emesis and diarrhœa so subsided that on the fourth day the opiates and pepsin were discontinued. In the second bottle of liniment (containing six ounces) the quantity of laudanum was reduced one-half. The patient made a steady and quick recovery, astonishing us all. The salicin was kept up for about two months, and was the only medicine after the first two weeks, when the liniment was discontinued.

Case III.—Strange to say, the next day after being called to see the above case of extreme marasmus, I was sent for to attend a child, aged ten months, who had had a diarrhœa all the past summer, had tried many medicines prescribed by physicians, but continuing to get worse, now resembling in all respects case number two, only not so extremely emaciated. It will suffice to state that the treatment was identical with that of case number two, only I did not find it necessary to apply the liniment, nourishment being more easily retained in the stomach. Salicin in this case also was the main element in the treatment, being the only medicine used after the first few days, and being continued for about a month. The child made a quick and permanent recovery.

Case IV.—Mrs. L., aged seventy-two years, has suffered for years from chronic diarrhœa, has tried every thing and has come to rely on laudanum, a dose of which will relieve her for a day or two. She is fast becoming an opium-eater, though not one yet. I prescribed grain-doses of salicin, three times a day. In a week much better, and in a month cured. She remained cured for at least three months; after that time I lost sight of her. She said she had a new lease of life.

The above cases typify the classes in which salicin is the remedy *par excellence.* It combines the tonic element of quinine with strong astringent properties. In cases of enteric atony, especially in chronic cases, from chronic diarrhœa or other debilitating diseases, where quinine is inadmissible from its tendency to irritate the bowels, in my hands salicin has given the most flattering results. My experience has been small, and it is the design of this article to draw attention to this subject, that we may have further light from more experienced quarters. So far, our authorities, as the Dispensatory, Stillé, Flint, and West, make, if any, the most cursory note of salicin as a medicine. Only in Reynolds's "System of Medicine" does Dr. Aitken mention it as "a remedy which has been found very valuable in cases of chronic diarrhœa, where opiates and astringents have entirely failed." I always prescribe it in powders, to be given in sugar-and-water. You will be surprised how readily it will be taken by the little ones; much more easily than quinine, though more bitter. It seems to be a purer bitter, and one much more acceptable to the stomach. In no case was it ejected till the system seemed satisfied, as mentioned in Case I. In that instance, though the patient had become fond of the powders, yet the stomach rejected them, though we tried several times. It is my rule to continue its administration for from two weeks to two months after the subsidence of the disease proper, according to the time the disease has existed. The dose corresponds with that of quinine.

The liniment which was used in Case II. may appear to have contained too much opium, but it answered an excellent purpose. It was absorbed very rapidly, did not narcotize, only soothed. Though I merely hit upon its components and proportions on the instant, directing that it should be discontinued if it quieted too much, I have always looked upon it as a happy hit, and under similar circumstances would use the same prescription. The cod-liver oil would not have been tolerated by the stomach for an instant. Though it made the house smell like a fish-market, the friends did not object, as they saw the benefit arising from its use. I could only account for the rapidity of its absorption through the abdominal walls on the supposition that it was just what the bowels wanted. If I may be allowed a few words concerning such a familiar medicine as opium, I would say that we fail very often to derive the good results we might expect from its use, by being afraid to give efficient doses. In cases of intestinal colic in the adult, one-third of a grain of sulphate of morphia hypodermically is the usual dose with me, to be repeated in half an hour if necessary; to a child aged six months, suffering from nocturnal attacks of colic, I give one-twenty-fourth of a grain by stomach. To my own child at that age, one night, suffering from colic, I gave one-eighteenth of a grain by mouth and repeated it in half an hour, with the happiest effects. In my practice I find that the caution about giving smaller doses of opiates in proportion to the age than of other medicines is not necessary. In fact, children require as large doses of opiates in proportion to their ages as of any other medicine. I am afraid we do not appreciate the abortive effect of a good round opiate in commencing acute inflammations, such as pleuritis, peritonitis, and enteritis. I have seen them evidently cut short. If you relieve the pain in the beginning of these diseases, or at the congestive stage, you go far toward aborting the affection.

Thrice in my short practice of six years have I seen a grain of morphine taken at one dose, contrary to the most explicit directions, yet no bad effects followed. I was not even summoned on account of any extraordinary narcotic symptoms. I can speak accurately as to the doses of opiates administered, even to the twenty-fourth of a grain, as I always carry a box of grain-powders with me, and graduate the dose as wished by adding water by the teaspoonful. I always use Powers and Weightman's preparation of morphia.

II.—*Cases of Tetanus treated with Chloral Hydrate.*[1] By O. H. Seeds, M. D., Columbia, Texas.

Case I. *January 9th.*—Miss E. K., aged fifteen years, by accident had had the great-toe cut through the second phalanx, severing the bone, and leaving the periosteum, flesh, and skin, on the under side. Three hours afterward, I saw her. She begged to have her toe saved, and I replaced it, using three stitches and dressing it with dilute carbolic acid. I visited her from day to day.

23*d.*—Called and dressed the toe. Patient doing very well. Said her throat was sore, from a back tooth she had broken off.

24*th.*—Was called in haste. Patient said she could not swallow. On entering the room, the first thing that impressed me was the general appearance, better known than described, of "risus sardonicus." There was slight tetanic spasm, with a little tendency to opisthotonos.

I knew what I had to contend with, and immediately called consultation, which confirmed my opinion.

We put the patient at once on full doses of chloral hydrate, sulphate of morphia, grain $\frac{1}{4}$, and at intervals tartrate of antimony and potassa.

25*th.*—She was visited by Drs. A. F. Morris, R. R. Porter, R. G. Turner, and myself, all agreeing in diagnosis.

26*th.*—We met, and, being assisted by Drs. Porter and Turner, I performed amputation, by disarticulation, at the juncture of the first phalanx of the great-toe, with the metatarsal bone, believing as I do that there is less shock to the nervous system in amputations by contiguity than by continuity. The patient came from under the influence of the anæsthetic, and there were no symptoms of shock. The wound healed kindly, but there was no abatement of the tetanic symptoms; in fact, they continued to increase.

27*th.*—Opisthotonos, rigidity of the abdominal muscles, and hard spasms when we withdrew the chloral. The morphia and tartar-emetic not having the desired effect, locking up the secretions and deranging the alimentary canal, they were withdrawn, and ten grains of bromide of potassa given three times daily with the chloral, keeping her thoroughly under its influence. I continued this treatment until February 22d. No urine passed without the catheter, and no action of the bowels, except by enema, since tetanus set in.

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[1] Read before the Texas State Medical Association, Austin, April, 1875.

23d.—The patient evacuated the bladder naturally and freely.

26th.—Bowels acted naturally.

27th.—Tetanic symptoms subsiding. Patient very weak, nervous, and fretful; will cry and grieve at any trivial affair; angry with her best friends, etc.

In the diagnosis of the above case, there was no difference of opinion among the medical men who saw it, all agreeing that it was a genuine case of traumatic tetanus.

In the treatment our main reliance was chloral hydrate, which we gave in doses sufficiently large to control the spasm and muscular rigidity, and to alleviate pain.

The patient was kept under the influence of chloral for thirty-one days, during which time a withdrawal of it would occasion trismus and opisthotonos.

March 3d.—On the thirty-first day, as she appeared convalescent, the chloral was gradually withdrawn. She had taken in the aggregate 2,720 grains of the chloral, and 480 grains of bromide of potassa—no bad symptoms following the use of those remedies, as feared by some authors. She made a good recovery, and is now entirely well, with only a very slight limp in her walk.

Case II.—Mrs. F., aged twenty-eight years, mother of three children, nervous temperament, pregnant, stuck a table-fork in the ball of her thumb. There was no bleeding, and the injury caused no uneasiness at the time. On the ninth day began to suffer pains, running up her arm and back of the neck. On the tenth day I was called to see her. I found her suffering very much, stiff in all her joints, the head slightly thrown back. She said she lay easier in that position. She could open her mouth as wide as usual, but very slowly. Said her jaws were tired. Swallowed awkwardly, but said it did not hurt her.

The next day I found her worse, with general rigidity of all the muscles, and entirely helpless. Still opened her mouth, but very slowly.

Fearing tetanus, I put her at once on chloral hydrate and bromide of potassa, equal parts, in sufficiently large doses to control muscular rigidity and relieve pain, which was now intense throughout the entire spinal column. After the fifth day of those remedies, an eruption made its appearance, such as is spoken of by some authors as liable to result from the bromides. The bromide was withdrawn, and the eruption disappeared. Her treatment was now little more than the chloral, and regulating the bowels with mild aperients. She recovered very slowly, slight symptoms continuing four or five weeks.

Owing to her condition, the chloral was not given in full doses, small quantities having the desired effect. These remedies were continued as long as any appearance of the disease existed, and without any bad results.

The question now arises, Has chloral hydrate any curative properties in the treatment of tetanus? This I am unable to say. But one thing we know—it will control trismus, opisthotonos, and muscular rigidity, and alleviate pain; and if by so doing we are able to hold this much-dreaded disease in check until Nature comes to the rescue, then we have accomplished much.

Again, we have no other anæsthetic or hypnotic, under the influence of which we can keep our patient for so long a time without injury to the vital forces.

The last case I do not report as fully-developed traumatic tetanus. I give the facts, the symptoms, the treatment, and results, and leave those interested to draw their own conclusion.

Art. III.—*A Case of Leucocythæmia, with Great Exhaustion, following Diarrhœa; Transfusion of Human Blood; Death.* By Thomas J. Gallaher, M. D., Pittsburg, Pa.

Mr. D., aged sixty-three years, came to this city on the 26th of May last, from the city of Indianapolis, of which place he was a resident. On the 28th he placed himself under my care for a chronic affection of the spleen. He had acquired the affection in the State of Indiana, where he had resided for nearly forty years, and had been sent north for its relief. I found him considerably reduced in flesh, weighing only one hundred and eight pounds, his former weight being about one hundred and sixty. He complained of more or less uneasiness in the epigastrium, with impairment of appetite; had a sallow complexion, and had lost considerable strength. The spleen was much enlarged, extending downward on the left side, half an inch below the umbilicus, was hard and smooth, though not painful to the touch. In the blood there was one colorless to about fifteen red corpuscles. How long the splenic affection had existed previous to his visit to me could not be accurately ascertained; but, from his statement, it must have existed several months, and acquired its present size gradually.

A small blister was applied over his stomach, and a choice nutritious diet, with gentle, passive out-door exercise recommended. In a short time his appetite had considerably improved, and he was able to take quinia and iron. He was kept on these and other tonics, with proper attention to exercise and diet, for a period of six weeks, when his appetite and strength were improved, and he gained in weight from one hundred and eight to one hundred and twelve pounds. At this time no change in size or character of the spleen, or of the condition of the blood, was observed.

On the 14th of July he was sent to the Alleghany Mountains, to enjoy the salubrity of the mountain-air, but unfortunately a food not suited to his condition was given him, when a diarrhœa of an exhausting character set in. The medical gentleman whose advice he sought while there failed to check his diarrhœa, and the patient was compelled to return to Pittsburg on the 6th of August, much thinner and feebler than when he left. He had lost from fifteen to twenty pounds in weight during his absence. He was now passing from ten to thirteen liquid stools daily, and was so exhausted as to be scarcely able to walk round the room. His appetite also failed him.

In a few days after his return, by the interference of kind friends, he fell into the hands of two homœopathic physicians, who were unable or unwilling to check the diarrhœa, or give him any relief. On the 19th I was recalled to the case. This day Dr. N. C. Thompson, his former physician from Indianapolis, visited him, and a council between us was held.

At this time the case appeared hopeless, for, with the loss of appetite and continuance of the diarrhœa, the emaciation and exhaustion had become extreme. The pulse had become exceedingly feeble and contracted, and small superficial ulcers appeared on the posterior wall of the pharynx, which extended to the nostrils and down the œsophagus. From the abdominal pain and tenderness which now accompanied the diarrhœa, and the thinness of the evacuations, there was no doubt as to the existence of extensive ulceration of the intestinal glands.

It may be proper to remark here that, in our opinion, the present exhausted condition of our patient was not the direct result of the original affection, viz., the enlarged spleen and leuchæmia, but of the induced diarrhœa. With this view, our efforts were directed to checking the diarrhœa, thinking that, in case this condition could be checked, improvement of the general health would follow, and life be at least prolonged.

A solution of quinia sulphate and morphia was injected into his arm, and suitable broths, milk, and cream, given internally. In two days the diarrhœa was checked to two passages daily, but on the third, August 21st, it returned to its former frequency. A suppository of tannic acid and opium was now introduced into the rectum every fourth or sixth hour, and quinia alone given subcutaneously three times daily. Nourishment by mouth and anus was given so far as this could be done.

August 22d.—The patient still growing weaker, and his pulse feebler and smaller. All hope of even temporary improvement appeared to be dissipated. He now of his own accord suggested transfusion of blood.

Hoping by this procedure to prolong life and thereby gain time for the arrest of the diarrhœa, I assented, and made immediate arrangements for the operation. Dr. A. M. Pollock was now called to my assistance.

At 8½ o'clock P. M., when we met to perform the operation, the patient felt quite cold, and the radial pulse could scarcely be felt.

Nine ounces of venous blood having been drawn from the arm of his son, a healthy young man of twenty-five years, this, after defibrination and straining through a thin cloth previously moistened with warm water, was injected into the median basilic vein. The greatest care was taken to keep the blood at a temperature between 100° and 105° Fahr., and free from bubbles of air. The instrument employed was the modified syringe, holding an ounce, belonging to the ordinary aspirator, to the two openings of which canulæ were attached. This instrument answered remarkably well, as the blood flowed into the vein with the greatest facility. The patient did not feel the entrance of the new blood into his circulation, nor did he have any chill, difficulty of breathing, or pain or unpleasant sensation of any kind, during or immediately after the completion of the operation.

In a few minutes an improvement in the temperature and pulse was quite perceptible; the former rose to 99.7°, and the latter became stronger and fuller. We left the patient quite comfortable at 11 o'clock P. M., but in less than half an hour the good effects of the transfusion appeared to pass off and he relapsed into his former state.

August 23d.—This morning he is still alive, with a fluttering, almost imperceptible pulse. Complains of pain in the back, but has passed no urine. At 10 A. M. he died. No *post-mortem* examination.

In this case, the extreme muscular atrophy of the heart and arteries, induced by the leuchæmia and chronic diarrhœa, was, no doubt, the reason why the circulatory apparatus did not respond, as it should, to the stimulus of the newly-transfused blood.

IV.—*Recovery after Operation for Strangulated Femoral Hernia of Three Days' Standing, in a Female Seventy-four Years of Age.* By Joseph W. Howe, M. D., Clinical Professor of Surgery in the Medical Department of the University of New York.

Mrs. Murray, aged seventy-four years, was taken sick on Thursday, June 5th, with severe pain in the lower portion of the abdomen, and vomiting. The bowels were constipated, and a large dose of castor-oil failed to produce an evacuation. On Friday and Saturday following, the pain and vomiting continued with increased severity. During Saturday night and Sunday the evacuations from the stomach were dark-colored, and emitted a foul odor. Dr. Frank W. Tucker was called in on Sunday evening, and diagnosed a strangulated femoral hernia. He made several attempts at reduction during the night, but failed. On Monday morning he aspirated the tumor, and drew off a quantity of dark, fetid serum. I saw the case in consultation an hour subsequently. The patient was in great distress—pulse rapid, but strong; abdomen tympanitic—stercoraceous vomiting. After the administration of ether I made a single incision parallel with Poupart's ligament, exposed the intestine and divided the stricture, which existed at Gimbernat's ligament and was exceedingly tight. The intestine was dark and emitted a disagreeable odor, but changed color shortly after the division of the stricture, showing that it was in a fit condition to return to the abdomen. Then the gut was returned, and the wound thoroughly cleansed. The lips of the wound were approximated in the usual manner, and an ice-bag applied of sufficient size to cover the lower part of the abdomen and the flexure of the thigh on the left side. Ten minims of Magendie's solution of morphia were administered hypodermically.

The ice was constantly applied for five days subsequent to the operation, and the patient kept in a semi-narcotized condition for the same period. On the sixth day she had a natural fecal evacuation. The improvement in her condition which followed the operation continued until complete recovery took place, three weeks from the commencement of her illness.

The rapid and unusual recovery from a strangulated femoral hernia, at such an advanced age, was due in a great measure to the after-treatment which was carried out by Dr. Tucker. The constant application of ice, and the narcotism induced by the morphia, controlled all local inflammatory tendency, and hastened a favorable termination.

Notes of Hospital Practice.

THORACIC ANEURISM.

A Clinical Lecture, by Prof. E. G. Janeway.

Gentlemen: To-day I desire to present before you some of those events which have fallen under my observation in cases of thoracic aneurism. I shall do this in rather an informal way, having as my aim to instruct and not to mislead you. Heretofore I have taught you the general laws which govern the diagnosis of aneurism, in presenting cases illustrating the phenomena of the disease when well marked, but to-day I wish to supplement that knowledge by drawing your attention to cases of aneurism where *tumor-bruit* and *sense of fluidity* are not distinguishing features.

Some years ago I saw a man who had had syphilis and had led a dissolute life. There was a pulsating tumor situated at the second right costal cartilage. This tumor was firm under the hand, and there was slight dullness on percussion over it. I then thought that the tumor was an aneurism partly filled with blood. My reasons for the diagnosis were:

1. That the man had syphilis, and we know that syphilis is a frequent predisposing cause of disease of the vessels.

2. That the tumor was situated on the course of the aorta, and also on that part of it most frequently the seat of aneurism.

3. That the right costal cartilage did not seem to be enlarged, but pushed up by something which gave it pulsation.

4. The dullness extended farther than a perichondritis of the second cartilage or a periostitis of the sternum would warrant. I allude to this latter fact for the reason that the case had been carefully examined by a physician who excluded the suspicion of aneurism and inclined to the diagnosis of periostitis of the sternum.

5. There was that about the pulsation which seemed to indicate that it was not due simply to an impulse communicated by the aorta to a small tumor situated over it. This could be better appreciated by placing one hand on the chest and the other on the back and then making pressure.

In this case the course of events has justified the opinion given, for, after continuing in nearly the same condition—with the exception of a slight enlargement—for four years, the tumor suddenly increased in size. It acquired a marked sense of fluidity with evident expansive pulsation, and a portion of it is now situated on the costal cartilage beneath the pectoralis major muscle, and by making slow and cautious pressure an irregularly-curved border may be felt along the course of the second costal cartilage. The physician who previously was confident in the non-existence of aneurism has now changed his opinion.

A patient on whom I recently made a *post-mortem* examination had an aneurism of the aorta taking the position and simulating aneurism of the innominate artery (a description of the case follows, which the reader will find in the proceedings of the Pathological Society, published in the New York Medical Journal, for August, 1875). It had been supposed during life to be an aneurism of the innominate or of the aorta and innominate, but the *post mortem* showed that the innominate artery was in a normal condition, and that the aneurism arose from the arch in front of it, and passing up the neck appeared in the situation of an aneurism of the innominate. When I presented this specimen at the Pathological Society, the question was raised as to whether an aneurism of the innominate ever existed without coexisting aneurism or dilatation of the aorta. There are several cases on record to prove to you that aneurisms of the innominate do exist without any appreciable change in the aorta, and I can refer you to a specimen in the museum attached to this hospital (Bellevue) as an example. You will thoroughly appreciate the gravity of the class of cases I have mentioned, when I tell you that a distinguished New York surgeon, of extensive hospital experience, made the mistake of attempting to tie the innominate for an aneurism of the aorta, resembling, as I have before mentioned, innominate aneurism.

In certain cases of thoracic aneurism, the only evidences of its existence will be the effects of pressure on some important part. Let me mention briefly some of the more interesting cases of this kind which I have observed, and allude to the errors of diagnosis which were made, that they may warn you of the difficulties to be met with. A very interesting one was that of a young man who had been sick, as supposed, simply with asthma and emphysema. He had been admitted to hospital by the examining physician, and in a few minutes after died of asphyxia. I made the *post-mortem* examination, and found that the cause of the sudden death was due to a small aneurism arising from the back part of the arch of the aorta. This pressed on the anterior part of the trachea, and, owing to the separation of two tracheal rings, had suddenly caused complete occlusion of its calibre. There was also emphysema of the lungs as a complication. That an aneurism, as small in size as this, and occupying the position that this one did, should escape observation during life, especially in a young man suffering from asthma and emphysema, is not to be wondered at. It is just possible that a careful examination in the suprasternal notch would have discovered it, as the transverse arch in this case was higher than usual. I allude to this case, not only to put you on your guard in the diagnosis of aneurism, but also in case of the sudden death of an asthmatic patient from asphyxia, to induce you to make a careful *post-mortem* examination, to ascertain the cause of death. I have yet to see a patient dying from sudden asphyxia in asthma.

There is another place where small aneurisms may occur and give rise to symptoms common to other diseases. I mean the last part of the transverse or the beginning of the descending arch. The tumor may press on the left side of the trachea, on the left bronchus, or on the left pneumogastric nerve, or its recurrent branch. The pressure on the latter is productive of symptoms which not infrequently cause the case to be mistaken for disease of the larynx. Usually at the same time as the left recurrent nerve is subjected to pressure, the trachea or the left bronchus is also involved. The prominent distinguishing features are the peculiar ringing cough, paralysis of the left vocal cord as seen by laryngoscopic examination, and paroxysmal attacks of dyspnœa not traceable to any pulmonary trouble, or not explained by any existing pulmonary disease. The paralysis of the vocal cord produces a change in the voice, ranging from hoarseness to aphonia, and frequently misleads those who do not use the laryngoscope, and is liable to give rise to a suspicion of chronic laryngitis. In some of the sudden attacks of dyspnœa which occur in the course of thoracic aneurism, death may supervene, but I do not think that either the fatal attack or the paroxysms are due in all cases to paralysis of the left cord alone, but probably in a certain proportion of cases to a simultaneous spasm of its fellow. My reason for supposing this is, that on two occasions I have had opportunity to examine patients with paralysis of the left cord, due to pressure of an aneurism, in whom, in the earlier part of a laryngoscopic examination, the right cord made its normal excursions, but, when the mirror touched the back of the throat, the right would be brought into apposition with its fellow, and remain so till I was afraid that the patient would die of asphyxia; but, as carbonic acid accumulated, the spasm would relax and the respiration revert to its prior condition. I very well recall one patient suffering from hoarseness and partial aphonia, into whose throat I introduced my finger. As soon as my finger touched the epiglottis, dyspnœa came on and laryngotomy had to be resorted to. This occurred in a patient I was examining for the first time, and I was not aware of the extreme irritability of the parts.

The mention of laryngotomy for this condition leads me to speak of this operation. I have sanctioned the operation in four patients under my charge suffering from aneurism, and witnessed it in one other. Not one of the five lived over a week, and though the operation did not save life permanently, yet it prolonged it and gave the patients time to arrange their affairs, and at the same time made their death more easy. In two of the cases, the specimens of which I presented to such of you as were present last winter, you will recall that there was also pressure on the trachea. The diagnosis of this had been made at the time of the operation, because the relief was not complete, and the attempt was made to remove the pressure in part; in one case by having the patient lie on his left side. The death in this case was due to the accumulation of mucus in the narrower portion, yet the position on the left side rendered the patient more comfortable.

An aneurism may press on the left bronchus, and, if there be a pneumonia or pleurisy on that side, serious mistakes in diagnosis may be made. In a short article on the subject of vocal fremitus, which appeared in the *Medical Record*, I mentioned two cases of pneumonia of the left lung, mistaken for pleurisy because of the obstruction of the left bronchus by aneurism. I have also witnessed several cases of pleuritic effusion coincident with aneurism of the aorta. In all these cases save one, the aneurism had been detected prior to the effusion. The reason why I allude so much at length to these cases is, that you may be thorough in your examinations, and be careful to get to the bottom of all evidences of all or any of these diseases. If there be an aneurism with a pleuritic effusion, a very important point in treatment presents itself, and that is, to consider well before you evacuate the fluid, for the pressure of the fluid upon the aneurism may tend to bring about coagulation of the blood within the sac, or, at all events, to retard its expansion.

If the fluid is withdrawn, sudden death may result, either from rupture of the sac or increased pressure on the trachea. These considerations are not simply theoretical, for autopsies have proved their existence. (The reader will find on page 293 of the New York Medical Journal for September, 1875, a case in which this explanation seems very rational.) If the pressure is so great that life is threatened from the effusion, it might be advisable to remove sufficient to render the patient comfortable. On the contrary, if no marked trouble arises from the effusion, I have been content in two cases to leave it alone, and should advise you to do the same. I presume that some would hold that the existence of inflammation was also serviceable by increasing the amount of fibrine in the blood. A very instructive case occurred recently in this hospital, which I wish to refer to, though it is not connected with the subject of aneurism. A middle-aged man had hoarseness, partial loss of voice, ringing cough, bloody sputa, and marked difficulty of swallowing. No aneurismal tumor nor bruit could be discovered ; but, from the history of the case, it was suspected that a small aneurismal tumor pressed on the recurrent nerve, left bronchus, and œsophagus. An autopsy showed, however, that this was due to a small carcinomatous tumor of the œsophagus, which had ulcerated into the left bronchus, and pressed on the recurrent nerve. These symptoms would more often have indicated aneurism, even without the physical signs. I mention this case that you may not suppose that the train of symptoms always points directly to an aneurism, and that it is sometimes a question of probabilities. Even a very careful study of all the phenomena may leave you in doubt, or lead to an erroneous conclusion, if you are anxious to make a positive statement.

There is still another place where pressure of an aneurism may take place and give rise to a symptom which often misleads physicians in their diagnosis. This place is the spine, and the symptom is pain. I could mention, if time allowed, several cases in which I have made *post-mortem* examinations and where the diagnosis of neuralgia, lumbago, pleurodynia, or Pott's disease, has been made. In these cases the aneurisms had slowly eroded the vertebræ and pressed on the nerves at the sides of the vertebral column. I have seen more cases of abdominal aneurisms thus mistaken than thoracic, yet enough of both to lead me to give you this caution. Always carefully examine for aneurism every case in which there is present persistent dorsal, lumbar, or such pain as might arise from pressure on the nerves at the side of the vertebral column. Those of you who were present at the clinic last winter will recall two cases of the kind I then presented before you. One had been told that he had rheumatism, lumbago, intercostal neuralgia, and Bright's disease, in consequence of the pain he suffered; yet, when a careful examination was made, you noticed how readily a correct conclusion could be formed, and how the lateral extension of the aneurism could be made out from the nerves implicated.

A friend of mine, a physician, to whom I had frequently spoken of the liability to mistake in this class of aneurisms, told me that not long since a patient came to his dispensary-class with pain in the dorsal region which he considered and recorded as neuralgic. He said, however, at the time, "I hope this is not one of those cases of aneurism simulating neuralgia of which I have heard Dr. Janeway speak." After the patient left the dispensary he dropped dead on the street; and at the coroner's inquest it was found that a thoracic aneurism had ruptured into the pleural sac. There are many other interesting and instructive cases which occur to me, and also the mistakes which have been made in their diagnosis. I will simply allude to one on which I purpose to speak at some other time—that is, aneurism of the first part of the arch of the aorta, which is liable to be mistaken for disease of the aortic valves, and *vice versa.*

Before I close I would ask you to be on your guard in passing an œsophageal bougie for stricture when possibly an aneurism may be the cause of the stricture. Cases have occurred, and possibly will occur, I suppose, where the dilating instrument has ruptured the aneurism, to the painful mortification of the physician. I hope that the cases which I have mentioned to-day may prove of service to you in examining closely cases which come under your observation, and the hints which I have thrown out be of service to you when engaged in private practice.

BELLEVUE HOSPITAL, NEW YORK.

Treatment of Aneurism of the Popliteal Artery by Flexion of the Leg.—An interesting case of popliteal aneurism has been under treatment in which a very satisfactory result was obtained by flexion. The patient was aged about sixty. Nine months ago she was beaten by her husband, and one month after was seized with a pain in the popliteal space extending down the leg. This pain continued steadily till six weeks ago, when it increased in severity, and at the same time a tumor rapidly developed in the popliteal space. When she entered the hospital this was about the size of a fœtal head, and extended laterally and posteriorly. The temperature of the affected leg was below that of the normal one. It was decided, before tying the femoral, to give the patient the benefit of postural treatment, and for this purpose the house-surgeon, Dr. R. G. Glass, forcibly flexed the leg, and maintained it in position by means of a posterior padded splint which was retained by means of a bandage. The splint was retained in position for a week, and twenty-four hours after its application pulsation and bruit disappeared. During the application of the splint no pain was complained of, but after its removal the pain returned. At the present time it is one month since treatment was commenced, and now the tumor has markedly decreased. During treatment and up to the present time the temperature of the leg has been from one to two degrees above normal, but it shows a tendency to gradually decrease.

Fracture of the External Condyle of the Humerus.—The special point of interest in this fracture is its rarity. The patient, a child, fell from a distance of twelve feet and struck on its side. There was considerable contusion of the elbow, and the diagnosis was arrived at with difficulty, the special symptom being motion of the external condyle with crepitation. The treatment consisted in flexing the elbow at right angles and putting it up in plaster-of-Paris bandage.

Strangulated Hernia; Orchitis.—The patient entered hospital with a strangulated oblique inguinal hernia. After the ordinary methods of reduction had failed, it was decided to operate. The ordinary operation was performed, and the hernia returned within the abdominal cavity. The patient recovered without any grave symptoms, but as a result orchitis set in. It was not, however, of a graver type than that usually met with in practice.

Penetrating Pistol-Shot Wound of Skull; Recovery.—The patient attempted to commit suicide by shooting himself in the head. When he was admitted to the hospital ward, it was found that the bullet had penetrated the skull, but the last half of the bullet had become flattened out on the surface of the parietal bone, and in this way checked its course. The dura mater was pressed on, but not penetrated. The bullet was removed by trephining, and since that the patient has recovered. During the recovery, an attack of erysipelas set in, and it was interesting to observe that the erysipelas stopped at the margin of the skin of the wound, and never showed a disposition to invade the dura mater or meninges.

Stab-Wound of the Abdomen; Recovery.—The patient received a stab-wound of the abdomen in a fight, and when seen was bleeding profusely, due to division of the epigastric artery. The wound went down to the transversalis fascia, but did not penetrate it. The epigastric artery was controlled by pressure made in the wound on the artery.

ST. FRANCIS'S HOSPITAL.

Correction.—The case of cancer of stomach reported in last month's Journal should read "ulcer of the stomach."

CHARITY HOSPITAL.

Necrosis of the Bones of the Upper Jaw; Removal of Part of the Floor of the Orbit, and Exposure of the Base of the Brain.—A man, aged forty-two, entered Charity Hospital suffering from necrosis of the upper jaw on the right side. The eye protruded half an inch on that side, and the sight was completely gone. When a probe was passed into the nostril, it penetrated to the extent of two inches, without much resistance, through carious bone. The face was very much swollen, and an abundance of fetid pus escaped from the nostril. The disease had been continuing for two years, and was attributed to the effect of phosphorus, inasmuch as the patient worked in a match-factory. The condition of the patient was extremely feeble, and barely sufficient to warrant any surgical interference, but it was considered that temporary relief might be obtained. Dr. J. W. Howe, assisted by Drs. Ripley and Yale, made an incision extending from the inner canthus of the eye down by the side of the nose, and around the *alæ nasi* to the median line. The cheek was then dissected up with little difficulty, and the necrosed bones were found to be completely detached, with the exception of the median line of the upper jaw; this was cut through, and the dead bones removed. The sequestra were found to consist of the superior maxillary, the malar, the floor of the orbit, and part of the sphenoid bone. It was found, after the bones were removed, that part of the base of the brain was exposed, but it was covered by indurated tissue. After the operation the patient did well, and the pain, which had been continuous previously, was completely relieved. A few days after it was found that evidences of necrosis showed themselves in the superior maxilla of the other side. Subsequently, he was taken with pain in the chest, and dyspnœa, and sank rapidly. *Post mortem* showed necrosis of three lower ribs on right side, gangrene of lower lobe of right lung, and empyema. The gap made by the operation was filled, to a great extent, with new material.

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Reports on the Progress of Medicine.

SURGERY.

1.—*Strangulated Hernia in an Infant, successfully treated by Aspiration.* Reported by W. Carey Rees, M. D., Melbourne. [Australian Medical Journal.]

On March 3, 1875, Ernest Gould, aged nine months, was brought to the Children's Hospital, with the following history:

His mother stated that ever since he was born she had noticed that a swelling appeared in the inguinal region and scrotum on the right side, whenever he cried, and that the swelling disappeared when he was lying quietly. He had had several attacks of diarrhœa during the straining, accompanying which the swelling increased in size. At other times he would pass three or four days without any action of the bowels, but was always relieved by the ordinary domestic remedies, castor-oil, etc.

On March 2d his bowels were open for the last time at noon, but nothing occurred to attract his mother's attention until about 8 P. M., when she noticed that he was very pale, and he commenced to scream out sharply at frequent intervals, and refused all nourishment. She then observed that the lump was very much harder than usual, and did not disappear as it had always done previously. About midnight he commenced to "vomit his motions" (to use his mother's own words), and continued to get worse until I saw him on Wednesday, at 3 P. M.

On examination, I found the child almost in a state of collapse, and constantly vomiting. The vomited matter was of a dirty-brownish color, and had a distinctly fecal odor. There was a tumor about the size of a pigeon's-egg, occupying the lower third of the inguinal canal, the external abdominal ring, and scrotum on the right side. It was tense, hot, and painful, and could not be reduced. Seeing that I had to deal with what seemed to me a case of strangulated hernia, I sent for Dr. Neild (honorary consulting physician), who very kindly came immediately, and, after examining the child, he agreed with me as to the diagnosis.

Dr. Neild administered chloroform, and I tried the taxis as long as I dared, and, finding that I could not reduce the protrusion, I introduced the smallest needle of my aspirator (which, fortunately, was at the hospital) into the tumor, and drew off about four or five drachms of dirty-brown fluid, and some gas. (The liquid had the same appearance and smell as the vomited matter, both having a distinctly fecal smell.) We could now readily feel what seemed to be an empty piece of intestine rolling under our fingers, and, while Dr. Neild had his finger upon it, it suddenly slipped back into the abdominal cavity. I then applied a pad and spica bandage and allowed the child to go home.

On calling next morning, I ascertained that the bowels had been open during the night, that the vomiting had ceased, and the child was perfectly well again. On their next visit to the hospital (three days afterward) I ordered a truss, and have heard nothing further about the child.

There can, I think, be no doubt as to the diagnosis in this case, and, as the timely use of the aspirator, after failure of the taxis, averted the necessity for herniotomy, I have ventured to bring this case under notice. I do not think that the fluid evacuated came from the cavity of the sac, external to the intestine, but from the cavity of the intestine itself, because

I introduced the needle to a considerable depth; and, moreover, the fluid had a distinctly fecal smell. But, even, if the fluid came from the cavity of the sac, it surely is a great improvement upon the ordinary herniotomy.

2.—*Ruptured Colon.* By W. F. Atwell, M. D., Amherst, Wisconsin. [Indiana Journal of Medicine, August, 1875.]

On the evening of February 2, 1874, I was called in consultation with my esteemed friend Dr. Brown, of Weyanwega, to see a patient suffering from *strangulated hernia.* The patient, H. S. L., an hotel-keeper, aged sixty-five, of slight frame, had been troubled for many years with a double hernia, was addicted to the immoderate use of alcoholic stimulants, and had that day, about five o'clock P. M., a quarrel with a guest, resulting in blows being freely exchanged. The quarrel ended by H. J. L., the patient, striking his opponent upon the top of the head with a large stone pitcher, bringing him to his knees directly in front of the patient; while in this position, H. J. L. was seized around the body by his antagonist, and received two or three bear-like hugs, with the head of his opponent thrust deeply into the yielding tissue of the abdomen. Patient became faint, and immediately gave up the encounter, walked to another room and lay down. Dr. Brown gave me the following history of his condition from 6 P. M. until my arrival at 8.30 the same evening: "Found the truss of patient pushed upward on left side and hernia protruding; tried taxis and position, and was unable to reduce it." Pulse at six o'clock, 85; at 7, 108; at 8 it had risen to 140 beats per minute, and there were progressively increasing prostration and coolness of the extremities. The treatment up to my arrival had consisted of morph. sulph. grs. $\frac{1}{4}$, aqua distil. gtt. x., injected hypodermically in the walls of the abdomen.

Upon my arrival, in moving the patient, the hernia slipped back into the abdomen with a slight gurgling sound. I found the patient suffering extreme pain, notwithstanding he had had three of the above doses an hour apart. Pulse 160 and thready; extremities cold; occasional hiccoughing, and some regurgitation. Patient continued to fail, and died by rapid asthenia at one o'clock the same night.

Result of *post-mortem* examination held at two o'clock, February 3d: Found heart and lungs in good condition; stomach and liver showing some evidences of intemperance; kidneys in fair condition; colon ruptured at the junction of the transverse and descending portions; rupture was about one-half inch in length, and from about the centre there was a transverse tear about one-eighth of an inch in length, giving to the rupture a stellate appearance. The coatings of the colon showed no evidence of disease, neither those of any part of the intestines.

3.—*Cases of Intestinal Obstruction from (probably) Malarial Causes, with some Reflections as to a Probable Cause of Intussusception.* By W. D. Hoyt, M. D., Rome, Ga. [Atlanta Medical and Surgical Journal.]

A series of cases which have recently occurred in my practice, taken in connection with some cases which have presented themselves in the past, have suggested to me some new views as to the cause of certain cases of intestinal obstruction; and, the treatment growing out of those views having fortunately been successful, I desire to put the cases, and the ideas which they have suggested, on record, with the view of calling the attention of my professional brethren to the subject, and inviting their observation of similar cases.

Cases I. and II.—November 26, 1874, I was called at 3 a. m. to see Mr. W., a large, healthy man, about fifty-five years of age. I found him suffering most intense abdominal pains, the result, he thought, of indigestion, he having drunk freely of buttermilk at supper. He said every thing seemed to stop at a certain place in his bowels. The pain was referred to the region of either the stomach or transverse colon. There was no vomiting. The tongue was considerably coated. I gave him a dose of calomel, with opium-pills, and applied a hot-pepper poultice to the abdomen, and he was relieved. I also directed a dose of oil in the morning, and at my visit on the 27th found that it had acted, and he seemed very well.

On the night of the 27th was sent for to see Mrs. B. (Case II.), a lady of fine constitution, but at that time somewhat pulled down, she having been confined on the 31st of October. I was at the time engaged with a very ill child in the country, and did not receive the message until next day, and did not see the patient until 8 p. m. I found she had had a severe attack of what she considered indigestion, and which she attributed to a glass of porter she had taken to increase the secretion of milk. There was no vomiting in this case, only intense pain. The tongue was considerably coated. I found, on inquiry, that she had had a similar but much lighter attack on the night of the 25th. I conceived that both of these cases were of malarial origin, and that Mrs. B.'s case was of the tertain type. I explained to her my views, and told her that the night of the 29th was the time for her to apprehend an attack, which I would endeavor to ward off.

On the 28th, at the same hour as before, 3 a. m., was called again to see Mr. W., and found him suffering from a similar attack. He considered this also indigestion, but could not attribute to any special article of diet, as he had been careful with reference to his food. I pointed out to him the element of periodicity in the case, told him of the other similar case, and told him the attack was not due to indigestion, but probably to a malarial engorgement of the abdominal organs, a recurrence of which we would endeavor to avert with quinine. In the mean time I used opium and a pepper-poultice for present relief.

On the 29th, Mrs. B. took twelve grains of quinine, so timed as to have her well under the influence of it at night, and as there was a slight manifestation of an attack—enough to confirm the diagnosis—also a little laudanum as directed.

On the 30th, Mr. W. took in the same way fifteen grains of quinine, and escaped the paroxysm entirely. In both cases quinine was used to guard against another paroxysm, and both recovered without further trouble.

Case III.—On the 1st of December, 1874, I saw an infant child of Captain C., aged four months, who, as far as I could judge, was suffering from a similar attack. The paroxysms, however, occurred according to my malarial diagram (concerning which I will hereafter write you), at noon and midnight. In other words, it was a double quotidian or remittent attack. The brain was much involved through sympathy, and the child was very ill. I used calomel, bromide of potassium, and quinine; the latter during both the afternoon and morning remissions, about 6 o'clock, according to the plan I have adopted in malarial attacks of this type, with organic complications. This I propose to elaborate in another article; suffice it now to say, that under this treatment the child made a speedy recovery.

Case IV.—January 27, 1875, I was called to see Mrs. W., quite a fleshy lady, about forty-five years of age. I found that she had been un-well for some time; had been taking Simmons's Liver Medicine freely, and was then suffering great abdominal pain, chiefly referred to the ascending colon. The bowels had not been freely moved. She did not bear opium well. I gave her, therefore, some bromide of potassium, a good dose of blue mass, applied a poultice, and directed her to take, in the morning, in the event of the pill not acting well, a dose of oil and turpentine.

28*th.*—I was called early to see the patient; she had vomited the oil and turpentine, had had no action from the bowels, and was suffering fearful pain; the abdomen was much distended. Gave opium-pills, applied a hot poultice, after rubbing the abdomen with turpentine, and administered copious enemata of warm water. She obtained no relief, the enemata failing utterly to move the bowels. Later in the day, gave her two doses of calomel, fifteen grains each (the first having been vomited), desiring to act on the bowels with Nature's purgative, bile. She suffered very much all that day and night, the only relief being from the opium. The free enemata administered again and again produced no result, in spite of the free kneading of the abdomen. The next morning—January 29th—I had given her an enema of castor-oil, turpentine, and tincture of asafœtida, in thin starch, which produced a small, dark, thin action. After this she seemed somewhat easier; but about 2 P. M. I was again called to see her, and found her suffering as much as ever. I repeated the before-mentioned enema, which produced another small action, rather more yellowish in color, after which she was again easier.

About 2 A. M. of the 30th I was called again to see her, and found her suffering as before, the pain being truly agonizing, and the abdominal tension was as great as ever. Struck with the apparent periodicity in the case, I inquired if the pains did not recur at a definite hour day and night. The intelligent answer was that they recurred regularly at 1 o'clock, both day and night. I thought this fact, with the evidence of the before-mentioned cases, warranted me in regarding the intestinal obstruction as proceeding from malarial causes. I accordingly wrote a prescription for quinine, four grains to the tablespoonful, in solution with sulphuric acid and water, which I directed the friends to have ready at 6 A. M., gave some opium, applied a hot poultice, and lay down to snatch a short nap, of which I was much in need. Waking between 6 and 7, I gave her, at 7, 9, and 11 A. M., a tablespoonful of the solution. She was free from severe pains all that day, and at 6 and 8 P. M. I gave her another spoonful of the solution. The night was passed pleasantly, and in the course of it and the next day she had several free bilious evacuations, accompanied with much gas, and producing a feeling of great relief. The quinine was continued for another day, when very little additional treatment was necessary, the patient convalescing favorably, though slightly ptyalized. After commencing to take the quinine, the tongue, which was heavily coated, cleared off gradually, and the patient has since been in good health.

The condition producing these symptoms is, I imagine, shown by the next case.

CASE V. *Obstruction of the Bowels, accompanied with Great Pain; Death occurring suddenly; post-mortem Examination.*—In the summer of 1866, soon after coming to Rome, I was called to see General M. L. S., a brave, determined soldier of perhaps forty years of age. He was suffering from constipation of the bowels, accompanied with great pain. A varied treatment was used, combining purgatives with opiates. After using other enemata, a pint of infusion of senna was thrown into the bowel, which produced quite a free action, but brought no feeling of relief.

I have no notes of the case, and at that time my attention had not been directed so closely to the periodicity of diseases. I recollect distinctly, though, that after leaving him quite comfortable late in the evening, I was called up at midnight, and found him suffering great agony. He was, I think, one of the bravest, most self-controlled men I ever knew; but so great was his pain that he could not repress his groans, and the perspiration stood in beads on his forehead. At his request I called Dr. Battey in to see him with me. He sunk very rapidly, a great change having taken place during my brief absence in going for Dr. Battey, and he soon afterward died.

As his death had been sudden, and the case peculiar, we deemed a *post mortem* advisable, expecting to find intussusception. The examination was made by Dr. Battey, Dr. Miller and myself being present. On opening the abdomen the peritonæum was found intensely congested, both that lining the walls of the abdomen and that covering the viscera. This congestion was much more intense at certain points of the large intestine. There was not a trace of intussusception, but at certain points of the large intestine, and particularly in the descending colon, where the congestion was most intense, there was a contraction of the circular fibres, presenting much the appearance as if a tape was around it. The calibre of the intestine, even in the relaxation of death, was almost obliterated. We imagined that during life the spasmodic contraction of these muscles had completely closed the intestine. The only other pathological condition found was that the gall-bladder was filled with gall-stones. Further observations on this case will be made in the closing remarks.

CASE VI.—On the 28th of December, 1872, I was called to see Mrs. P., a lady of good constitution, about fifty years of age. Found her suffering from intestinal obstruction, which I endeavored to relieve with opiates and copious enemata of warm water. After passing into the bowel all the fluid it would hold, she would immediately have an action, passing off at first simply the water thrown in; after a longer or shorter interval another action would follow, bringing away small quantities of thin fæces. Dr. Gorman saw her with me early in her sickness. After using repeated injections for perhaps two days, I procured a stomach-tube, which I passed up the rectum, and through which I administered subsequent enemata. On introducing the finger for the purpose of passing this tube, I found the lower portion of rectum much distended, but at a short distance from the sphincter the bowel was so constricted that I could barely introduce the tip of the finger into it. On inserting the end of the tube into this contracted ring and administering an enema, she would have only one action, bringing away small quantities of fæces. It was evident that when administered without the tube the first action was from the portion of the bowel below the point of contraction, and that some of the fluid passed through this contracted ring of intestine, producing the second action. Vomiting came on early in this case, and was very aggravated, becoming finally stercoraceous. At one time we applied a blister at the back of the neck, and administered an enema of belladonna and quinine. She seemed to rest decidedly better after this, and, on administering another injection of water through the tube, it was evident that the contracted portion of the bowel was more relaxed. The quinine was used only once a day for two days, when, there being no definite object for using it further, it was laid aside for other remedies. Drs. Battey and G. W. Holmes were in the mean time called in consultation. We considered the question of gastrotomy, but decided against it, as the local symptoms were not well marked. The patient sunk and died on the morning of the 6th of January, 1873. There was much in the physiognomy which strongly suggested the preceding, and of which Case IV. afterward reminded me. No *post mortem* allowed.

CASE VII. *Malarial Spasm of the Ascending Colon diagnosticated; Recovery under Treatment of Quinine.*—March 26, 1875, I was called to see

Mrs. E., a lady of about forty-two years of age. She was suffering very severe pain, which she supposed to be ovarian. An examination of the seat of pain revealed the fact that it was located in the right lumbar region, over the ascending colon. Questioning disclosed that on the evening of the 24th she had had some pain; that it had returned on the evening of the 25th with greater severity. She had been easy all day, but the pain had returned with still greater severity shortly before sending for me, about 6 P. M. The bowels were constipated. With the light of the preceding cases I diagnosticated spasm of the ascending colon of the quotidian type. I directed her to take elixir of opium, and to apply a poultice that night, and to take quinine two days. She had no recurrence of the pain, and soon got well.

Remarks.—I think the malarial origin of five out of seven of these cases is shown by their periodicity, and by the effect of remedies. I may add that the tongue in the worst cases presented in a marked degree the heavy white coat which I have so often seen accompanying intense malarial affections with organic complications. The nature of the attack is, I think, a spasm of the circular muscular fibres of the intestines, produced by derangement in the reflex system of nerves, causing in the worst cases, I think, real intestinal obstruction. This is probably associated with engorgement of the peritonæum, perhaps periodical in character. So far as I have been able to judge, the spasm has fallen upon some portion of the large intestine. The intensity of the pain in these cases is a very striking feature. I think the manifestation of pain greater than in any other class of diseases I have witnessed. The idea has also occurred to me that true intussusception may be preceded and produced by this contracted condition of the intestine. Certainly no condition could be so favorable for invagination. Would not contraction *plus* active purgation produce intussusception? May we not have in this condition the explanation of the occurrence of at least some of the cases of intussusception?

Believing that if the ideas here thrown out are correct, it is important they should be known; and believing that the patient in Case IV. owed her recovery to the plan of treatment, and that under any other plan of treatment the case would have followed the course of Cases V. and VI., I have prepared this article with the view of calling the attention of my professional brethren to the consideration of these views, and to the observation of similar cases.

THEORY AND PRACTICE.

1.—*Nitrite of Amyl in Sea-Sickness.* By CROCHLEY CLAPHAM, L. R. C. P. L., F. L. A. S., PH. D. [*Lancet*, August 21, 1875.]

IN recommending the employment of nitrite of amyl as a remedy in the treatment of sea-sickness, I do so with considerable experience of its utility. During a trip round the world of nearly two years' duration, in which I crossed the Pacific Ocean in various directions no less than eleven times, I made the treatment of this distressing malady my especial study, with what result will be seen below.

On my way out East I ran through all the prevalent modes of treatment, nice and nasty, such as iced champagne, bottled porter, camphor, chlorodyne, belladonna, ice to the spine, etc., and, with the exception of the last named, found them all merely palliatives, and of very uncertain action even to that extent. With respect to Dr. Chapman's spinal ice-bags, I can report favorably of their use in sea-sickness, when procurable; but people will not or cannot provide themselves with these articles, nor will ship-owners supply them in any number, and nothing can be more futile than attempting to treat twenty or thirty sea-sick people with one or two ice-bags.

As to the proximate cause of the malady, I entirely agree with Dr. Chapman that it consists of an undue congestion of the vessels of the spinal cord. On this point I had an excellent opportunity of drawing some conclusions from a *post mortem* which I was fortunate enough to make while acting as superintendent of the Government Civil Hospital at Hong-Kong last summer. The case was that of a Chinaman who had been killed, while in the very act of vomiting during an attack of sea-sickness, by the fall of a heavy piece of iron from aloft. I found, on making the necropsy (four hours after death), that, leaving out of consideration the heart, which had been pierced by the falling iron, all the organs were healthy with the exception of the spinal cord, the vessels of which were literally gorged with blood throughout its entire length. I was struck with the similarity of this appearance to that presented by the spinal cord of an epileptic patient who died in the "status," and upon whom I made a *post mortem* while at the West Riding Asylum, Wakefield. Coupling the *post-mortem* likeness to the resemblance which obtains in life between these two affections (pallor of surface, cold sweat, etc.), it occurred to me that the remedy which, in the hands of Dr. J. Crichton Brown, has proved so valuable in the epileptic "status," might be advantageously employed in the treatment of sea-sickness.

To test the truth of this surmise I made several trips across the Pacific, and tried the remedy altogether in one hundred and twenty-four cases. Of these, one hundred and twenty-one proved eminently satisfactory, there being no return of the vomiting after the administration of the nitrite; the remaining three cases being only unsatisfactory in so far as they required a further dose or two of the remedy.

The mode of exhibiting the drug which I adopt is by inhalation, three drops of the nitrite being poured on a handkerchief and held *close* to the patient's nose. The inhalation must be conducted rapidly, so as to give the full influence of the drug without a *too free* admixture of air.

The action of the remedy in freeing the circulation and relieving the hyperæmia of the spinal cord will be quickly evidenced by a throbbing sensation in the temples (occasionally rather disagreeable) and by a more or less general flushing and increased warmth of the surface of the body. This warm and comfortable glow, which takes the place of the chilly sweat so disagreeable in this disease, is usually followed in the course of half an hour by a pleasant slumber, from which the patient wakes to eat a hearty meal. Should the sickness recur, which it may do after the lapse of twenty-four hours, the inhalation must be repeated. The patient should be in bed when under treatment, so as not to interfere with the subsequent sleep; and I have usually judged it better to allow one fit of vomiting to take place before applying the remedy, not only to insure the *bona fide* character of the seizure, but also because I consider it advantageous unless the patient be in a very weak state of health. I only met with one case in which the medicine was refused on account of disagreeable effects, and in this instance, which occurred in the tropics, the patient complained that "it made him feel so hot he would rather be sea-sick."

In conclusion, I hope my experince of the remedy will be supplemented by that of the "sea-going" portion of the profession generally, and that any further facts elicited regarding its action will be duly published.

2.—*On the Use of Quinine as a Gargle in Diphtheritic, Scarlatinal, and other Forms of Sore-Throat.* By DAVID J. BRAKENRIDGE, M. D., F. R. C. P. E., Assistant Physician to the Royal Infirmary; late Physician to the Royal Hospital for Sick Children, Edinburgh. [The Practitioner, August, 1875.]

Since Binz published his famous experiments, showing the action of quinine on the white corpuscles of the blood, numerous authorities have confirmed and extended his observations. The following facts, among others, may now be regarded as established:

1. Quinine is a protoplasm-poison, and limits the number and movements of the white blood-corpuscles and pus-cells.
2. It prevents the pathological migration of the blood-corpuscles into the tissues of the membranous and parenchymatous organs exposed to the air, both when it is given subcutaneously and when it is directly applied to the part.
3. It restrains the dilatation of the blood-vessels.
4. It is an antiseptic, and exerts a paralyzing, or, in larger doses, a destructive influence on microzymes.

With these facts in view, the theoretical appropriateness of quinine as a gargle in diphtheria with abundant proliferation of micrococci, and in scarlatina, and various other forms of sore-throat, especially when attended with membranous exudation, pultaceous secretion, or ulceration, is apparent. For it antagonizes all the visible factors of such forms of inflammation.

Before employing it for this purpose, I was familiar with the use of solution of quinine as a dressing in bed-sores and other tedious ulcers. The marked diminution in the secretion of pus and the rapid improvement which I observed to take place in these cases when so treated, first led me to anticipate good results from quinine as a gargle.

For the last four months I have treated every suitable case of sore-throat that I have met with in my wards in the Royal Infirmary and elsewhere, with a gargle composed, as a rule, of two grains of sulphate of quinine and five minims of dilute sulphuric acid to each ounce of water. Sometimes I have been able to increase the strength; sometimes I have been compelled to diminish it. When well tolerated, the stronger it is the better.

The results I have obtained fully confirm my favorable anticipations. From a considerable number of cases I draw the following conclusions:

Simple non-syphilitic ulcers of the throat, under this treatment, at once assume a healthier aspect and heal rapidly.

In syphilitic ulcers, the local treatment has always been accompanied by the internal administration of iodide of potassium, or some other suitable constitutional remedy; but my impression is that, in these cases, the cure is hastened by the quinine-gargle.

Its effect in the sore-throat of scarlatina is very marked, the pultaceous secretion being checked, and the inflammatory swelling diminished.

It is of comparatively little use in the early stage of cynanche tonsillaris, over which tincture of aconite, in minim-doses frequently repeated, has so decided a control. When, however, abscess followed by abundant discharge of pus results, its beneficial influence in checking the suppuration and promoting healing is marked.

In the slighter forms of diphtheritic sore-throat it answers admirably, preventing the extension of the disease, and promoting the separation of the membranous exudation.

It is, however, in severe cases of true diphtheria that I hope it will prove most useful. I have now employed it in three cases of this disease, and in all the result has been entirely satisfactory.

I select the following case, because it was one of unusual severity:

Mrs. K., a widow, twenty-five years of age, previously healthy, passed an open drain on February 5th; remarked the bad smell at the time, and said to her sister, "I am sure I have caught something." Complained of slight chilliness for several days until February 9th, when she was seized with sickness, headache, vomiting, and rigors. Did not feel the throat sore until the 10th, on the afternoon of which day I first saw her. She was in the dining-room, dressed, and sitting on the sofa, and had a haggard and very anxious look. Pulse 140, very weak. Tenderness and swelling at the angles of the jaw, and down the lymphatic glands of the neck on both sides. Tongue furred, and breath very offensive. A foul, ragged, yellowish-gray patch, about the size of a florin, covered the right tonsil. The arch of the palate, uvula, and fauces, were of a dark, livid-red color. Ordered to bed, to take ten grains of chlorate of potash every three hours, and to gargle the throat with Condy's fluid (a teaspoonful to a tumblerful of water) every half-hour night and day. Milk, beef-tea, sago, and arrow-root, to be taken freely.

February 11*th.*—Less anxious expression. Pulse rather firmer, 120. Diphtheritic patch cleaner-looking and less offensive; but has extended about two lines up toward the uvula.

12*th.*—A new patch has appeared on the left tonsil, and another at the back of the pharynx, and there is great pain in swallowing. Temperature 103°, pulse 130. Bowels regular. Beef-tea and milk taken in considerable quantities.

Ten drops of tincture of perchloride of iron to be added to each dose of the chlorate of potash.

13*th.*—Very great pain in swallowing, chiefly on the right side, left and posterior patches extending, right separating. Uvula still free. Temperature 102.2°.

14*th.*—Still great pain in swallowing. Diphtheritic patches have extended considerably on the left side; that on the right tonsil has separated to-day. Pulse 120. Has been able to take a considerable amount of nourishment.

Medicinal treatment has been steadily carried out. Has slept between the periods of gargling pretty well up till to-day. Ordered three glasses of port wine in the day.

15*th.*—Had a restless night. Great pain in swallowing, and the food returns partially by the nostrils. There has been a slight discharge from the nostrils, with tenderness, from the commencement of the disease; it is now sanio-purulent, and acrid. The diphtheritic membranes are still very firmly adherent, and are gradually extending. They now cover all the posterior surface of the pharynx, extending on the left side over the tonsil and left side of the uvula. The right tonsil is clean, tender-looking, and presents a cup-like appearance where the false membrane has separated.

The following gargle was ordered to be used alternately with the Condy's fluid every half-hour:

℞. Quiniæ sulphatis,	gr. xviij
Acidi sulphurici diluti,	♏ xlij
Aquam ad	℥ vj., misce.

This at first produced retching, and had to be diluted with an equal amount of water. A gradual return was made in a few hours to the full strength, which was afterward well borne.

16*th.*—Decided improvement. A good many portions of the false membrane have become detached during the night. Pulse 100, and of better strength. The tongue is cleaner, and the swelling of the throat is much less. The swellings at the angles of the jaw have quite fallen, and the throat altogether looks better. Patient attributes the improvement to the new gargle; has had a good night. She fancied and enjoyed a cup of tea this morning for the first time.

9 P. M.—A good many shreds of false membrane have become detached during the day, and the whole affected surface looks healthier. Considerable pain attended the separation of the sloughs during the afternoon. Temperature 100.4°, pulse 108.

From this date the throat-symptoms steadily and rapidly improved; and on the evening of the 18th the diphtheritic false membrane—the last trace of which was seen in the forenoon hanging loosely from the posterior surface of the pharynx in the middle line—had entirely disappeared.

The paralysis of the veil of the palate, which commenced on February 15th, culminated in general paralysis of great severity and duration, from which the patient is only now (June 16th) slowly recovering.

The intensity of the poison must have been great. On the first day of the disease, a little girl, residing in the house, was sent away to the village of Dunoon, on the Clyde, to be out of danger. She escaped herself, but carried the poison to a younger sister of the patient (Mrs. K.), who took the disease and died after six days' illness.

I have found the quinine-solution useful as a wash in aphthæ, stomatitis, and other affections of the mouth; but my experience of it in these cases has been limited by the difficulty attending its use in childhood, owing to its very bitter taste.

REPORT ON LARYNGOLOGY.

No. III.

BY GEORGE M. LEFFERTS, M. D.,

CLINICAL LECTURER ON LARYNGOSCOPY AND DISEASES OF THE THROAT, COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK.

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1. The writer thinks that much of what was formerly designated as laryngeal phthisis has no connection whatever with tuberculosis, but that the mark is also overreached by those who disclaim entirely the tuberculous character of all laryngeal ulcerations. The proneness which tubercle, when seated in the laryngeal mucous membrane, exhibits toward necrobiosis explains in a measure the fact why, in this site, it so often escapes detection, tubercle being no longer recognizable as such when once it has undergone caseation and softening. There is nothing characteristic in the broken-down *débris* of tubercle.

After excluding the catarrhal ulcerations, which have been so often mistaken for tuberculous, there still occur a limited number of ulcerations in which it is possible to demonstrate the existence of miliary tubercles in those parts of the mucous membrane where the mucous glands and their ducts remain unaffected. The writer further notes the liability of the sharp, projecting edges of the tracheal rings and the vocal cords to become first involved, and considers this to be due to an inoculation of these parts with the tuberculous materials as follows: the tenacious sputa clinging to the tracheal walls, and extending their greatest pressure and friction upon the projecting ridges, exercise a deleterious influence upon the epithelium, and cause an hyperæmic condition of the underlying capillaries; the moment arrives when the sputa are loaded with tuberculous elements, some of them still, perhaps, possessed of amœboid movements, and the ground for this tubercular seed is in excellent tillage, and freely supplied with running streams of lymph and blood. Another reason suggesting and favoring this view of a local infection by the direct contact is, the infallible precedence of a tubercular process in the lungs. This statement is only apparently at variance with the ground held by many of the best laryngoscopists, that tuberculous laryngitis may be developed before there are any lung complications, since they are disposed to designate by this same term ulcerative laryngitis, even when dependent upon mere chronic follicular inflammations, and the author doubts whether a rigid discrimination beyond the mere site of the ulcerations is possible, for miliary tubercles are not recognizable as such by the laryngeal mirror.

4. Oertel, in a very complete article under the above heading, after considering some historical points in connection with the subject of laryngeal growths, describes in detail the various forms of instruments which have been found adapted for their removal, as well as those necessary for a laryngoscopic examination. The subject of local anæsthesia is also shortly considered. The paper proper is based upon the results of the examinations and operations in sixty-eight cases of laryngeal growths, observed by him during a period of two years—fifty-nine of these having been removed by endo-laryngeal operation. The pathological character of the growths was as follows: thirty-nine cases of fibroma, twenty-four of papilloma, three of epithelial cancer, one of cyst and one of membranous adhesion of the vocal cords; the subject-matter being divided into classes according to the histological nature of the growths. Each department is fully considered in detail, and illustrated by numerous clinical histories and many drawings of the appearances presented in given cases. The general considerations relating to the location of the various classes of neoplasm, their size, form, method of attachment, color, position, anatomical relations, microscopical anatomy, and the amount of functional disturbance which their presence caused, together with the indications for and method of operating, are fully and carefully considered.

The author presents, in conclusion, some novel ideas regarding the topography of the larynx, considered in its relation to certain planes, without regard to its anatomical configuration, together with the stereometric relations of the neoplasms, matters which have a special bearing upon the question of operative procedure and choice of instrument.

The article is one of the most complete that has appeared in the literature of the subject, and will repay a careful perusal.

5. Porter records the result of his observation of one hundred cases of *phthisis* as follows: In the one hundred cases sixty were males, and this is opposed to the general idea that phthisis is more common in the female. Other statistics show the same. In the Infirmary of Edinburgh for three years, one hundred and eighty-five cases were males and one hundred and twelve females. The average age of the men was thirty-five years, and of the women thirty—the number of both in the third decade being greater than in any other. This result agrees with the statement of Flint, who says, "The disease is most liable to be developed between twenty and thirty." The temperature showed that in the more incipient or in chronic cases, there was little departure from the normal line, going above 100° only when there was rapid progress of the disease.

In fifty-seven, or more than one-half of these one hundred cases, there was laryngeal complication, and the writer describes the local appearances clearly and concisely as follows: "In a typical case there is at first only a chronic hyperæmia to be seen of the mucous membrane, covering the larynx, not so marked as in laryngitis, nor so extensive. Afterward there is more or less thickening, especially about the ary-epiglottic folds and inter-arytenoid folds. These parts now look somewhat paler than before and seem infiltrated with a dense consistent substance. The swelling, especially about these folds, is eminently characteristic. Mackenzie calls it pyriform."

In many cases the ary-epiglottic fold is swollen, so that it bulges out toward the median line, like a small cylinder tapered at each end, covering the vocal cord almost out of sight; and this appearance, when distinctly seen, may be considered as diagnostic of the affection.

Soon afterward, the epiglottis becomes thickened, and the mucous membrane is dotted with little white isolated spots, small glands whose retained secretion distends, and is seen through the mucous membrane covering them. Ulceration, beginning at these points, extends into the surrounding structure (if the patient survives the advances in the lungs long enough), accompanied by difficulty of swallowing, dysphonia, and sometimes complete aphonia.

The author urges the importance of the laryngeal symptoms in the diagnosis of phthisis, and rests his argument on the inferences—1. That the larynx does become tubercular; 2. That it is affected in a large number of cases of pulmonary tuberculosis; and, 3. That the symptoms of a typical case of phthisis in the larynx are well defined.

He finds that the thickening in the larynx takes place most rapidly when the process of deposits in the lung is at its height, which fact he thinks points to the conclusion that the thickening here and the deposits there partake of the same nature and come from the same cause, the action being modified only by the difference in structure of the affected organs.

6. Grossmann, in an address delivered before the Society of Hungarian Physicians at Rabb, gives a full description of Schroetter's method for dilating the cicatricial bands and adhesions which so commonly follow a *perichondritis laryngea*, occurring with either typhus, variola, scarlatina, or most frequently syphilis, and relieving, sometimes curing, a condition of *laryngeal stenosis* which has, until lately, been considered incurable. Space does not permit of our giving a full abstract, but those interested in the subject will find a full account of the method, together with drawings of the various instruments and appliances employed, in the given reference.

9. Chailloux examines, from a surgical-forensic stand-point, those unusual cases of fracture of the larynx which are caused by strangling and hanging. The article is convenient for reference, as it embraces notes of various scattered cases, but otherwise contains nothing essentially new upon the subject.

16. Bouchut says that the indications for tracheotomy in croup result from the progress of the symptoms, and the evolution of the disease. Merely because a diagnosis has been made, an operation does not necessarily follow. Croup has three stages: 1. The period of exudation; 2. That of suffocation; 3. Anoxæmia, or the period of asphyxia. Now, is it in the second or third of these that we should operate? and how are they to be recognized? In the former, there are attacks of suffocation and nervous accidents; the child with false membranes in the larynx coughs and struggles, it is choking and strangling, it attempts to rise, to seek air. At this time it is suffocated, not anæsthetized, with carbonic acid. An emetic sometimes answers for its relief; there are not yet obstacles to continued expectoration. It is not now necessary to perform tracheotomy; on the contrary, it is well not to do it. In case tartar-emetic fails to cause vomiting, apomorphia may be used—it has a special value against suffocative dyspnœa.

In the third period the operation is indicated. The third period commences with anoxæmia. The sensibility is first blunted, then destroyed. The operation is then clearly indicated. Anæsthesia caused by an accumulation of carbonic acid is an important fact which has been too much neglected. It is a signal for tracheotomy. The anæsthesia is not sudden, but comes on gradually, and it is necessary to postpone the operation until it has attained a certain degree of intensity. Up to the time of Bouchut's introducing anæsthesia into the pathological history of croup, attention was given to the color of the face, which in the stage of suffocation becomes blue. But this is here an unreliable sign, it is not correct. Asphyxia may be blue or white, it proves nothing, and the symptoms of anæsthesia must determine the question of operation. Nevertheless, before resorting to tracheotomy, tartar-emetic may be tried, and it gives good results in the period of suffocation. But when the second period has passed, when asphyxia with anæsthesia exists, tracheotomy is indicated—indicated clearly and positively.

He considers the contraindications to the operation to be as follows: First, age. In infants of six months the operation does not succeed. After fifteen to sixteen months it may be tried, but success is doubtful. At two years it is indicated, unless the subject be very feeble.

Scarlatina anginosa, or other complications of the disease, is a contraindication; measles is not a positive contraindication, but the result will be doubtful. In pneumonia, if simple and atelectasic, operate; but, if embolic, refrain from operating. Finally, we must be guided by the general phenomena of diphtheritic poisoning and of albuminuria. If albuminuric diphtheria is accompanied by nasal discharge, the operation is quite useless.

17. In an interesting and suggestive paper, Robinson states as his belief, that it is highly probable that morbid changes in the structure of the vagi are often the proximate cause of spasmodic effects in the lungs, which is made manifest rapidly, by symptoms of oppression and anxiety, and that *nightmare* is therefore *not* a mere effect of the imagination, but that there is also a material cause to which it owes its production. This may be a morbid condition of almost any kind, and it may exist in a remote organ, which is not in contiguous relations with either the trunk or the branches of the pneumogastric nerves. Such fact, however, is not usually true, and in tonsillar enlargement we have, owing to the anatomical position of the tonsils, an immediate, direct, and efficient cause of trouble of the sort. He believes, therefore, that, by the compression which originates in an hypertrophied condition of the tonsils or lateral walls of the pharynx, we may have that perversion of nerve-force in or that changed condition of circulation about the pneumogastric nerves which shall produce, as a result, anxiety and difficulty of breathing, through their morbid and excessive influence upon the muscular layer of the bronchial tubes, and that spasm produced after this same manner may also affect the larynx. In conclusion, he offers the following as a rule in practice: whenever chronic tonsillar enlargement is accompanied with spasmodic phenomena, having their anatomical seat either in the lungs or vocal organs, excision of the tonsils (unless there be some formal contraindication) may be performed with much resulting advantage, for by this operation we shall probably rid our patient of painful and recurring attacks of dyspnœa or oppression.

18. Calori describes certain synovial sheaths which he has found within the thorax. The first form of bursa he describes as lying between the aortic arch and the lower extremity of the trachea, firmly attached to the former, but less adherent to the trachea, and being enveloped in abundant loose connective tissue. In front of it a second bursa is sometimes found, an arrangement analogous to the prepatellar bursa; and in rare instances, above it, toward the left side, another smaller bursa, corresponding to the left common carotid artery, is present. The object of the first-named bursa, the *aortico-tracheal*, is to facilitate the movements of the aortic arch upon the trachea.

The second bursa is situated between the trachea and the isthmus of the thyroid body, and is more frequently met with than the above. It varies in size, and is generally single. The function of this bursa, the *thyro-tracheal*, is to diminish the friction between the trachea and the thyroid isthmus.

The third bursa lies between the crico-thyroid muscle and the thyroid gland, and is also in contact with the upper rings of the trachea; it is called the *crico-thyro-thyroid*, and serves to remove the slight difficulty which the supraposition of the thyroid gland would place in the way of the free action of the crico-thyroid muscle. In some cases these bursæ are represented merely by loose and rather soft connective tissue. They present the ordinary structure of *bursæ mucosæ* or synovial sheaths.

27. Bertels describes the appearances and treatment of a case of this rare affection as follows: Face cyanotic and expressive of great anxiety. Respiration stridulous. The lips and teeth widely separated, and the tongue protruding, painless, and pressed against the hard palate. The mucous membrane œdematous, and the salivary secretion abundant. A hard, painless tumor, of a dark-red color, extended from the inferior edge of the lower jaw on the right side to the clavicle on the left, losing itself in the tissues in the neighborhood of the cricoid cartilage and the outer border of the platysma myoides. Pulse small, 140; temperature, 40.5 (C.).

As neither scorbutus, caries (osteomyelitis granulosa), typhus, nor other acute infectious disease could be diagnosticated, the disease was considered as cynanche sublingualis, or pseudo-erysipelas colli. Cause unknown.

The treatment consisted in the injection of two hypodermic syringefuls of a two-per-cent. solution of carbolic acid, under the skin, lukewarm stupes about the throat, and ice-pellets internally. In ten hours there was a most marked improvement; the respiration was free, the cyanosis had disappeared, and the mouth could be closed. Pulse, 100; temperature, 37.5° (C.). In the following five days, after four and one-half injections, the tumor had entirely disappeared.

Three grains of carbolic acid in solution, therefore, served to cut short the whole process without sloughing or suppuration, and to bring to a speedy and successful termination an affection which, according to Wernher, is fatal in one-half the cases attacked.

29. M. Crequy directs attention to the fact that injections of chloral will effect cures in cases of ozæna where other means have failed. He instances the case of a girl who had had a bad ozæna for ten years, which had resisted various methods of treatment, tannin, phrenol, Enghien-water, etc., but which was overcome by the chloral injections. The nasal injections are made by means of a rubber tube one metre in length, which is arranged as an ordinary siphon, and used in the same manner as the douche of Thudichum. The solution which he uses consists of chloral, two grammes, water, two hundred and fifty grammes, a drachm of this being added to about half a pint of water.

31. Of this disease M. Tillot, of Paris, says therapeusis has not kept up with improved means of diagnosis of the condition of the whole nasal tract by means of the specula and the laryngoscopic mirror. The method, however, which he pursues, and with a considerable degree of success, is simply as follows: 1. Medication directed against the diathetic state of the patient; 2. Free cleansing of the mucous membrane from all crusts of inspissated secretion; and, 3. Direct applications to the membrane. The third object is obtained by means of slightly-astringent powders, or by the administration of these substances suspended in water and used in the spray-producer. He uses for that purpose the mineral water of St. Christian, which is nearly cold, odorless, tasteless water, containing iron and copper, with some traces of iodine and arsenic. He appends several cases both of simple chronic rhinitis and of ozæna, in which the adoption of this plan has led to considerable relief and often cure. The hint of employing the spray-producer is worth remembering.

34. Dr. Roberts strongly recommends the use of turpentine externally in tonsillitis. He folds the flannel to four thicknesses, wrings it out in hot water, and pours oil of turpentine over a spot the size of a silver dollar. The flannel is then applied over the sub-parotid region, and the fomentation continued as long as it can be borne. After removal a dry flannel is applied, and the same region rubbed with turpentine every two hours. This application is continued daily until resolution occurs. He believes that the turpentine has almost a specific effect in tonsillitis, and that its action is not simply that of an irritant.

40. Brakenridge, from the observation of a considerable number of cases where this remedy was used, draws the following conclusions:

Simple non-syphilitic ulcers of the throat under this treatment at once assume a healthier aspect and heal rapidly.

In *syphilitic ulcers* the local treatment has always been accompanied by the internal administration of iodide of potash or some other suitable constitutional remedy; but his impression is that, in these cases, the cure is hastened by the quinine-gargle.

Its effect in the sore-throat of *scarlatina* is very marked, the pultaceous secretion being checked and the inflammatory swelling diminished.

It is of comparatively little use in the early stage of *cynanche tonsillaris*, over which the tincture of aconite in minim-doses frequently repeated has so decided a control. When, however, abscess followed by abundant discharge of pus results, its beneficial influence in checking the suppuration and promoting healing is marked.

In the slighter forms of *diphtheritic sore-throat* it answers admirably, preventing the extension of the disease, and promoting the separation of the membranous exudation.

It is, however, in the severe cases of true diphtheria that he hopes it will prove most useful. He has employed it in three cases of this disease, and in all the result has been highly satisfactory. The gargle which he uses is composed of ten grains of sulphate of quinia and five minims of dilute sulphuric acid to each ounce of water.

41. This article is well written, although its author apologizes for its incompleteness, the descriptive portions of it being especially well treated.

The coincidence of so-called arthritic or herpetic affections of the skin and certain inflammatory manifestations in the throat is incontestable, and it is also highly probable that both are influenced by one and the same cause or causes—an important fact in a therapeutic point of view. It is, however, impossible to diagnosticate, from the objective characteristics of the pharyngo-laryngeal lesion alone, whether the affection be herpetic or arthritic.

The author gives the characteristics of the herpeto-arthritic affection of the throat as follows:

There is a catarrhal redness of the laryngeal mucous membrane, an injection of the vocal cords, and a velvety appearance of the inter-arytenoid commissure, besides an angina, which in the simpler cases is merely vascular, while in the more severe cases it is hypertrophic in its nature, and finally the following conditions of the tongue will assist in making up the diagnosis:

1. The *pityriasis linguæ*, which is characterized by the *café-au-lait* color of the tongue, the dorsal surface of which has a villous appearance, and is slightly fissured toward its borders. The chronicity of the case and its clinical history will serve to diagnosticate this state of the tongue from one arising from gastric derangement or the abuse of tobacco.

2. *Eczema linguæ* is recognized by the villous appearance of the tongue, much more pronounced than in the former case, a marked dis-

coloration, which may even change to a black, and an hypertrophy of the filiform papillæ. It is, moreover, covered by deep fissures.

3. *Psoriasis linguæ*, which exists under two forms: one, the dry and flat form, in which the tongue appears as if deprived of its epithelium, and looks white and shining as if touched by a crayon of silver nitrate. The appearance presented is suggestive of the mucous patches of syphilis or the milky-white *plaques* seen in smokers.

In the second, the nummular form, large and thick projections are seen at the back part of the tongue, which are reddish on their tops, and of an opaline rose-color below. They are sometimes found isolated, sometimes grouped in clusters, and resemble the caliciform papillæ, although they are much larger. The tongue is fissured and covered with deep furrows.

42. On July 21st last, Von Langenbeck, of Berlin, performed the above operation on a man, aged fifty-seven, with cancerous infiltration of the whole upper portion of the larynx above the ventricles, involving also the epiglottis and the hyoid bone, as well as the base of the tongue. The first symptoms of hoarseness and dyspnœa began four years ago. In November, 1874, he came into the surgical clinic with severe dyspnœa, cyanosis, and symptoms of impending suffocation, and the diagnosis of carcinoma was made. As the patient refused to have the larynx removed at that time, tracheotomy only was performed, and he went out relieved in January. In July, 1875, he returned, still wearing the canula, but unable to swallow any thing except liquid food. The larynx was swollen, broadened, and hard externally, and at the back of the tongue an uneven lobulated growth could be both seen and felt. His strength and general condition were favorable. The tracheal opening in the neck was before the operation continued downward, and the trachea above the opening plugged with Trendelenburg's apparatus, so as to prevent any down-flow of blood into the bronchi. The patient was then narcotized by chloroform administered through the canula, and was kept unconscious for two hours. Langenbeck made an horizontal incision two centimetres above the hyoid bone, and extending from one sterno-mastoid muscle to the other, and bisected it by a vertical incision; the skin was then thrown back in two flaps, and the larynx dissected out, beginning from above and working downward, so that the trachea just below the cricoid cartilage was the last part separated. The whole larynx, with the epiglottis, the hyoid bone, and the posterior third of the tongue, as well as the anterior and lateral portions of the pharynx, with the pharyngo-palatine arches, and a small piece of the œsophagus, were then removed. The following muscles were divided, without reckoning the small laryngeal muscles: the sterno-hyoid and thyroid, the omo-hyoid and mylo-hyoid, the digastric, genio-hyoid, stylo-hyoid, and stylo-glossi, the stylo-pharyngei, and the glosso and pharyngo-palatine. Forty-one arteries were ligated, including both external carotids, which were each doubly ligated and divided between the ligatures, and both hypoglossal and lingual nerves were cut through. Both sub-maxillary glands were also removed. Langenbeck lays great stress on the operation being conducted from above downward, as it enables the surgeon to lay bare the greater number of vessels, and to ligature them before they are cut, and so spare as much bleeding as possible. The preparatory tamponing of the trachea is also all-important. After the operation the immense wound was simply closed by compresses soaked in a one-third-per-cent. solution of salicylic acid, and no attempt was made to bring the skin together with sutures. The patient's condition on July 22d, the day after the operation, was remarkably good (pulse 100), and he was able to take abundance of liquid nourishment through a tube passed into the œsophagus. On July 28th his progress was still good, and he had no fever. A two-per-cent. solution of boro-salicylic acid was being

used to swab the pharynx and diminish the abundant purulent secretion from the surface of the wound.

Note.—Authors of papers, etc., will assist in the preparation of these reports by forwarding separate or marked copies of their articles to the Journal, addressed, "Report on Laryngology."

Translations.

On Innervation of the Spleen and its Relation to Leucocythæmia.—It is known that irritation of the splenic nerves and the action of certain chemical reagents cause contraction of the spleen; that, inversely, section of the splenic nerves gives rise to swelling of the organ. Dr. von Tarschanoff, with the object of studying the vaso-motoric effect on the changes of volume in the spleen, opened the abdomen of curarized and artificially respiring dogs, drew out the spleen and determined its exact size. Irritation of the central end of the pneumogastric nerve, still more of the medulla oblongata, caused intense contraction of the spleen, provided the splanchnic nerves were intact; the contraction gradually disappeared after cessation of the irritation, and the blood-pressure rapidly returned to its previous condition. Irritation of the central portion of the sciatic nerve has a similar action, though in a less degree; that of the peripheral end of the pneumogastric still less, or not at all. The cause of the phenomenon is to be sought in the more immediate or reflex irritation of vaso-motor centres. Section of the splenic nerves causes immediate and considerable swelling of the organ, as the result of paralysis of the corresponding vascular nerves. After the white blood-corpuscles of the animal had been counted and the splenic nerves then divided, and the spleen returned into the abdomen, some of the animals survived the operation. In one animal six to fifteen white corpuscles were counted in the field before the operation, but, on the second, third, and fourth day after it, they had increased from forty to seventy. This leucocythæmia however, is only transient, for after the fourth day it had disappeared, and the spleen diminished in size. Experiments have proved that opening of the abdomen alone without division of the splenic nerves does not give rise to leucocythæmia. The above observations throw light on the increase of white blood-corpuscles which are found during the course of acute infectious diseases with swelling of the spleen.—*Wiener med.-chir. Centralblatt*, No. 8, 1875. E. F.

Chronic Aortitis.—The following is a *résumé* of a paper read by M. Jousset before the Parisian Academy of Sciences: 1. Chronic aortitis is an affection characterized pathologically by a chronic inflammation of the coats of the aorta. The principal lesions are atheroma, milky and chalky patches, thickening and loss of elasticity of the walls, and lastly dilatation of the artery. The inflammatory nature of these lesions has been demonstrated by microscopic examination. The inflammation and endarteritis can be propagated to the endocardium and *vice versa.* The lesion then consists of cardo-aortitis. Premature ossification of the peripherical arteries and renal sclerosis are habitually found as concomitant lesions. 2. This affection presents itself in two forms: either associated with pain, and known under the name of angina pectoris, or with slight or no pain. 3. Chronic aortitis is a frequent affection; it is commonly mistaken for and confounded with an affection of the heart, or perhaps with an interstitial nephritis. 4. Chronic aortitis sometimes follows the acute form. The causes of the two are identical: alcohol, tobacco, coffee, and tea. All the patients had either gout or hæmorrhoids, and had passed the thirty-fifth year. 5. The principal symptoms are habitual dyspnœa and occasionally severe attacks of suffocation, which have the character of cardiac dyspnœa. The pulse becomes frequent and small, and finally ceases; great despondency, cold sweats, and sometimes complete syncope. During the attack, the expiration is convulsive and prolonged. The remaining symptoms are sleeplessness, loss of strength and anæmia, which give rise to œdema, albuminous urine, and sub-delirium. Death occurs by asphyxia, syncope, or uræmic convulsions. 6. The physical signs consist in various modifications of the aortic sounds, length of the second stroke in sphygmographic tracings, and at an advanced period increased dullness on percussion.—*Lyon Médicale.* E. F.

Administration of Medicines to Infants through the Mother's Milk.—Dr. Lewald has investigated the elimination, by the milk of the mother, of iron, bismuth, iodine and its compounds, arsenic, lead, zinc, antimony, mercury, alcohol, and several narcotics. His numerous experiments were made in the goat. A certain dose of the medicine was administered to the animal, after which the milk was examined. The principal conclusions which the author has arrived at are: 1. A larger quantity of iron can be administered to the infant through the mother's milk than by any other means. 2. Bismuth likewise is eliminated by the milk, but in very small quantity. 3. Iodine does not appear in the milk until ninety-six hours after taking it; the iodide of potassium given in doses of forty grains *per diem* appears four hours after ingestion, and continues to be eliminated for eleven days. 4. Arsenic appears in the milk at the end of seventeen hours, and its elimination had not ceased after sixty hours. 5. Though one of the most insoluble preparations, the oxide of zinc is nevertheless eliminated by the milk, and it is probable that this is also the case with the other preparations of zinc; fifteen grains of oxide of zinc were found in the milk at the end of from four to eight hours, and it disappears sooner than iron, because no trace of it could be discovered after fifteen or sixteen hours. 6. The elimination of antimony is an undeniable fact, and it is well to bear this in mind during the period of nursing; the same holds true in regard to mercurial preparations. 7. That alcohol and the narcotics are eliminated by the milk has not been demonstrated. 8. Sulphate of quinine is eliminated very easily; a child suffering from intermittent fever was cured by administering quinine to the nurse.—*Lyon Médicale.* E. F.

Acholia.—Dr. S. Kersch, of Prague, designates with this term those morbid processes in which the entire secretion of bile is suspended, no traces of it being found either in the fæces and urine, or in a jaundiced coloration of the skin and conjunctiva. The author has observed three cases, two children and one adult female. In the two former, aged respectively fifteen and eight months, the symptoms were identical, consisting of those of intestinal catarrh. There were much flatulence and crying, and defecation only by means of an enema. The stools were of a light-grayish color, nor did the urine show any traces of biliary coloring matter on chemical examination. Neither the skin nor conjunctiva was discolored, pulse 130, temperature much increased, especially of the head; during sleep, short clonic convulsions. This condition lasted eleven and fourteen days, after which the fever and pains disappeared, and the stools again became colored. The third case was that of an unmarried lady, thirty-six years old, who had had severe diarrhœa for several weeks, loss of appetite, and frequent vomiting. Tongue covered with a thick, white fur; pulse 76; no elevation of temperature; menstruation regular. The vomited matter and stools were of a light-gray color; the urine was light-colored, and no biliary matters were found on chemical examination; there was no jaundice nor discoloration of the conjunctiva. The only additional symptoms were slight headache and abdominal pains at stool. These trivial symptoms disappeared after very small doses of morphine. The author could find no similar cases in literature, and thinks the condition is attributable either to the interruption of all biliary secretion, or to its decomposition in the blood when its discharge is prevented.—*Memorabilien*, 5, 1875. E. F.

On the Use of Chloral Hydrate.—Dr. G. Leonardi (*Liguria Med.*) observes that, notwithstanding the value of the remedy, it cannot be denied that it is often misapplied. In London 4,400 pounds are consumed annually. The insufficient results hitherto observed are not attributable to the remedy, but to the carelessness of physicians, who, without properly understanding its physiological, therapeutical, and toxicological effects, administer it without distinction in the most different diseases. As yet the indications and contraindications for its employment have not been clearly set forth. Chloral hydrate acts, first, as an excitant; secondly, as an anæsthetic, especially on the cerebral centres. Its action, usually rapid, depends on its more or less good quality and on the varying individualities. It can be given either by the mouth or rectum; in the former case, mixed with syrup, in teaspoonful doses, or with water when given in the form ot enema. The administration of chloral as an hypnotic is called for in all conditions which require the beneficial effects of recuperating sleep. It is contraindicated in cardiac debility with valvular lesions; in disorganizations in the mucous membrane of the digestive organs; in advanced diseases of the respiratory organs, etc. The medium dose varies between 30 and 75 grains. When given beyond 120 grains it acts like a deadly poison. It is an indispensable remedy in the hands of the intelligent physician, but may become a dangerous poison in those of the inexperienced, superficial practitioner.—*Med.-chir. Centralblatt.* E. F.

On Osseous Transplantation.—In a lecture before the Munich Medical Society, Prof. von Nussbaum reviewed the accidents after fracture, with special reference to those cases in which, after gangrenous exfoliation of bone, there remains a wide gap between the osseous ends, the only connection being a long tendinous band. The author maintains that osseous union can only be accomplished by the transplantation of a piece of bone, and communicated a case in which this operation was successful. The case was one of an officer who had sustained a comminuted fracture of the right ulna, from a gunshot-wound through the middle of the forearm. The fragments had exfoliated, after which the wound cicatrized. The distance between the osseous ends was about five centimetres, and was occupied only by a thin cicatricial band. Though the radius was intact, the arm was useless from the great mobility of the fracture. The operation consisted in completely exposing the false joint and removing the ligamentous band with scissors. The upper end of the ulna, about five centimetres from the fracture, was split in such a manner, with the periosteum, as to retain by the latter a small bridge for the nutrition of the separated portion. This was then turned so as to fit into the space. The indurated lardaceous tissues of the fractured ends were then incised to establish inflammatory action, the wound was closed with the button suture, and a fenestrated dressing was applied. The case had an extremely favorable course. In about six weeks the ulna was continuous and firm, and the entire usefulness of the arm was regained in about five months, when the paralyzed muscles had recovered their former strength.—*Aerztl. Int.-Bl.—Med.-chir. Cent.*

E. F.

Spinal Irritation.—In the Société de Médecine de Paris, M. Onimus recently made some statements concerning the application of the continued current for the purpose of determining the hyperæsthetic points of the spine in spinal irritation, or of those corresponding to the seat of the medullary lesion. This method is more sensitive than pressure, or the application of the sponge with hot water. It is sufficient to conduct either of the electrodes along the column, while the other rests at the lower portion of the column. In treatment by the continued current, the positive pole should be applied a little above the sensitive point. The author marks the sensitive points with nitrate of silver, and on these he afterward applies the cautery or douche, and it is always a favorable sign when the spinal hyperæsthesia diminishes or disappears. As an example of spinal irritation the author reported a case of strangulation at the ring of a non-descended testicle, in a patient with hysterical phenomena; the lumbar region of the spine corresponding to the genito-urinary centre was the seat of very violent pain. The positive pole was applied at this level, and the nervous symptoms were calmed during the first sitting. In instituting local revulsive medication, M. Onimus prefers the actual cautery; but the continued current is even better, for—1. It regulates and accelerates the circulation; 2. It modifies the dynamic state of the nervous system. A descending or centrifugal current diminishes the reflex actions of an over-excited spine, and alleviates strychinism.—*Lyon Médicale*, No. 7, 1875. E. F.

Morphine-Injections in Dyspnœa.—According to Dr. A. Renault, hypodermic injections of morphine not only cause the disappearance of the pain, but also rapidly modify the attacks of dyspnœa. Whatever may be the cause of the difficulty of respiration, the effect is constant, whether it be dependent on an affection of the thoracic organs or on some other disease, accompanied or not by pain. The observations on which these conclusions depend are divided into two categories. In the first, the result only is stated, without reference to the cause. The second is devoted to the study of the *modus agendi*, the pulse, temperature, and respiration, being accurately noted. Soon after the injection of the morphine, the inspirations are notably diminished in number. This is in accordance with the preconceived notions of the effects of opium. The inspirations became deeper as their rapidity diminished. In most of the cases thus treated, the respiration was short and sonorous, but in less than fifteen minutes after the injection it became inaudible, and the thorax was seen to expand and contract with great regularity and slowness. The local application of the remedy is much more efficacious than that by the mouth. Injections of atropine are dangerous, and should be abandoned on account of the accidents which they have caused—*L'Union Médicale*, and *Giorn. Veneta di Scienz. Med.*, December, 1874. G. R. C.

Neuroma Multiplex; Cure by Neurectomy.—Kosinsky (*Cent. f. Chir.*) relates the following case: The patient, a man thirty years old, stated that the tubercles had first shown themselves in his sixteenth year, and had remained very small and painless, until recently they had become larger and sensitive from prolonged military marches. Examination showed the buttock to be covered with over one hundred roundish-oval tubercles, varying in size from a pin's-head to a hazel-nut, which were imbedded in the corium, and were very painful on pressure. They were somewhat elastic, and covered with desquamating epidermis. Microscopic examination of two of the larger tubercles showed their composition to consist of nerve-fibres and connective tissue. As there was no possibility of removing the numerous tubercles by either knife or cautery, and as all other means had failed to give relief, Kosinsky decided to excise a portion of the nerve as near as possible to the spinal centre. An incision in the gluteal fold exposed the nerve, one inch of which was removed, entire insensibility of the gluteal region following. While the wound healed by granulation, the tubercles disappeared so rapidly that during the four weeks in which the patient remained in the hospital most of the smaller ones had disappeared. Several months after the operation only a few remained, which caused no inconvenience.—*Med.-Chir. Cent.* E. F.

Cysts on the Posterior Wall of the Bladder.—Cysts in the pelvic cavity in adult males have very seldom been recognized during life, and our knowledge concerning their seat and origin is still obscure. In five cases Englisch demonstrated the existence of such cysts, and to their description adds the following considerations: Cysts on the posterior vesical wall can originate—1. From the remains of embryonic formations. 2. From dilatations of the sinus prostaticus when its opening is closed. 3. From expansions of the vesiculæ seminales. The most important diagnostic symptom is frequent difficulty in passing water, dependent on the varying degree of fullness of the cyst; the urine preserves its normal quantity and quality. It will always be possible to ascertain the presence of a tumor, which occasionally projects above the symphysis pubis and can be distinctly demarkated when the bladder is empty. Rectal examination reveals a fluctuating tumor. The only possible remedial measure is puncture of the cyst by the rectum, and in most cases the nature of the cyst is revealed only by the puncture.—*Pest. Med.-Chir. Pr.*—*Med.-Chir. Cent.*
E. F.

On Super-Alkalization of the Blood under the Influence of Lime and Magnesia.—The lime-waters in their action as dissolvents and lithontriptics do not take a direct part in producing an alkaline reaction. Soda, however, always directly renders the urine alkaline. Neubauer has established that lime and magnesia ingested are not eliminated by the urine. M. Caulet has proved that they cannot be absorbed. Their alkalization of the blood is produced indirectly by stimulating the acid secretion of the stomach; the urine then becomes alkaline, just as in the cases where the secretion of gastric juice is excessive, such as chronic organic gastric disease, chronic vomiting, certain dyspepsias, scrofula, worms, cerebral diseases, hepatic and renal colic, etc. This indirect hyper-alkalization by lime and magnesia, being subordinate to the functions of the stomach, will be contraindicated when the stomach has lost the faculty of secreting an acid (chronic parenchymatous gastritis). Alkalization by the earths is less prompt but more lasting than the direct alkalization by carbonate of soda; they appear especially to have the advantage over the latter of determining a more energetic molecular renovation and disintegration. Hence the superiority of alkaline earths in gout and gravel.—*Bulletin Thérapeutique—Lyon Médicale.* E. F.

Treatment of Chronic Tumefaction of the Spleen.—Prof. Mosler, of Greifswald (*Deuts. Arch. f. kl. Med.*), maintains that, provided certain precautions are taken, injections into the spleen can be made without danger. It is first necessary to diminish the quantity of blood in the organ, and this object is attained by giving an hypodermic injection of hydrochlorate of quinine. For some time before the parenchymatous injection is made, ice is applied over the spleen, and, as soon as the organ has contracted so that its inferior extremity lies against the abdominal wall, the injection can be made; if it causes much pain, it can be followed by an injection of morphine. Carbolic acid (1–200) was first employed; in another case Fowler's solution, and these injections did no harm. In one of the cases the diminution of the volume of the organ was considerable. One cubic centimetre of a mixture of Fowler's solution (1–10) was injected several times. The pain was relatively moderate, the cold being kept applied over the splenic region. This treatment caused complete cure in a patient after all other means had failed.—*Gaz. Hebd.* E. F.

Hydatid Cyst discharged with the Urine.—Dr. Palle (*Bull. de la Soc. Méd. de Reims*) reports the case of a young, robust man, twenty-eight years old, who first came under his care for mucous patches of the throat. He was suddenly attacked one evening with very intense pain in the right iliac fossa, which radiated toward the right lumbar region; also severe vomiting. The pain continued all night in spite of hypnotics, but disappeared the following morning after a bath, leaving a severe lumbago. Four days later he had an attack similar to the first, but of shorter duration. Twelve days after this last attack, being seized with a desire to urinate, the stream was suddenly interrupted, but continued upon a violent effort, after which about two teaspoonfuls of an opaline liquid were discharged, together with an hydatid cyst. A second cyst followed twenty days afterward. The patient had been taking Van Swieten's diuretic (composed of corrosive sublimate and spiritus frumenti), and the author thinks that possibly the parasite may have been destroyed by its diuretic action.—*Gaz. Hebdom.* E. F.

Local Œdema in Heart-Disease.—M. Hanot has observed at the hospital *Cochin*, in the service of M. Bucquoy, four cases in which, during an advanced period of the asystolie, the œdema occurred in the upper extremities, and constantly followed the same line of march. The left arm was always the first to become œdematous, and in three of the cases it was the only one which became so. In the other case the right arm did not assume this condition till some time after it had appeared in the left; then the asystolie diminishing, the œdema disappeared, first from the right arm, and, after considerable time, from the left.

M. Hanot thinks these peculiarities are due to the disposition of the left brachio-cephalic venous trunk, which is longer and more oblique than the right one—hence the blood-current is more retarded on the left side than on the right. A moderate disturbance of the right side of the heart will, therefore, cause œdema of the left arm, while a greater degree would cause the same condition to take place in the right arm.—*Gaz. Méd.*, and *Trib. Méd.*, No. 315, 1844. G. R. C.

Treatment of Whooping-Cough.—Pertussis is one of the diseases for which art has thus far done but little. Many remedies have been suggested, but they have all proved ineffectual. Wilde (*Deutsch. Archiv. f. klin. Med.*, B. 14, H. 2) has obtained excellent results from the inhalation of a mixture of chloroform, ether, and turpentine.

It is important that the treatment be thoroughly carried out; the patient should always have the mixture at hand, and, when the paroxysm commences, should pour about a teaspoonful of it on a folded cloth. This should be held a few inches from the mouth, and the inhalation of the vapor continued till the paroxysm subsides. If properly conducted, this treatment soon cures the disease. The composition of this mixture was for a long time a subject of experiment, but the author at last concluded that the following formula gave the best results: ℞. Chloroform, 30 grammes; ætheris, 60 grammes; ol. terebinth. rectif., 10 grammes.—*Ugeskrift for Laeger.*, December, 1875. G. R. C.

Bromide of Potassium in Amblyopia.—The quieting effect of bromide of potassium on the centres of reflex movement, its power of moderating the activity of the heart and of lowering the temperature, and its influence on the vessels of the retina, have induced A. Quaglin to try its effect in amblyopia from abuse of alcohol and tobacco. He begins the treatment by giving one gramme daily in 200 grammes of water, gradually increasing the dose till toxic symptoms become manifest. In a few cases the cure was complete, in others the disease was arrested. There were no relapses. He thinks that, since bromide of potassium causes the cerebral vessels to contract, it will also be useful in amblyopia due to neuritis descendens and retinitis from insolation, in rheumatic meningitis, and lead-poisoning. Bromide of iron should be tried in anæmic individuals.—*Annali di Ottalmologia*, Fasc. 2 e 3, 1874. G. R. C.

Treatment of Cerebral Rheumatism.—Pathological anatomy and the ophthalmoscope prove that this complication of acute articular rheumatism is only a form of meningitis. Examination of the membranes of the brain reveals considerable venous stasis with an opaline infiltration of the pia mater caused by numerous leucocytes. The ophthalmoscope reveals a serous infiltration of the optic papilla and retina, with dilatation of the retinal veins. Rheumatism of the brain is ushered in by more or less violent delirium, which ends in coma and asphyxia, sometimes so rapid as to destroy life in a few hours. In three cases of this character, cure resulted by the aid of chloral hydrate taken by the mouth in doses of from forty-five to ninety grains, repeated until the delirium had disappeared. [From M. Bouchut's paper before the French Academy.]—*Lyon Médicale.*

Treatment of Varix by Local Applications of Perchloride of Iron.—Dr. Linou, of Verviers, has for three years treated varix with great success by the local application of perchloride of iron. He used a solution of the strength of six grammes in two hundred of water. Compresses of flannel are to be wrung out in this fluid and applied to the parts with a moderately tight bandage. These applications should be renewed for seven or eight days consecutively, after which the bandage should be continued without further wetting with the solution. After a time the solution is again used, and the bandage is then applied and left till the varix has entirely disappeared, which generally occurs in one or two weeks, according to the extent of the swelling.—*L'Independente* and *Gaz. Med. Ital. Prov. Venete*, December, 1874. G. R. C.

Galactorrhœa in Old Age.—Dr. Caso Luigi publishes two cases in *L'Osservatore*, February, 1874. The first was a woman sixty-five years of age, who had had five children. She ceased to menstruate at the age of fifty-five. When sixty she noticed that her breasts became tumefied and secreted milk. Notwithstanding her age this woman experienced violent venereal desires, which she was obliged to relieve herself. Ergotine caused the secretion of milk to cease. She died the same year, of pleuro-pneumonia.

The second patient was fifty years old, and had had two labors. She had cancer of the womb, during the course of which the galactorrhœa became developed, and continued till her death. The milk of both these women presented, on examination, the normal characteristics. G. R. C.

Miscellany.

Appointments, Honors, etc.—The vacancies recently caused by the promotion of Dr. Ringer and Mr. Christopher Heath have been filled up by the appointment of Dr. G. Vivian

Poore, of Charing-Cross Hospital, to be Assistant Physician, and Mr. Arthur E. J. Baker, Surgeon to the City of Dublin Hospital, to be Assistant Surgeon. The decoration of the Legion of Honor has been conferred upon Dr. Bormemaison, Physician-in-Chief of the Hôtel-Dieu of Toulouse; Helson Batut, Surgeon-in-chief of the Hospitals of Toulouse, and Dr. Th. Desclaux, the Mayor of Tonniens, for their services during the recent inundation. Prof. Wurtz, Dean of the Paris School of Medicine, having been appointed to the vacant chair of Chemistry in the Faculty of Sciences, will necessarily be obliged to send in his resignation as Dean of the Paris Faculty. On account of the difficulty, however, which is experienced in finding a successor to him, his resignation has been withheld until the reopening of the school in November next. The appointment will very likely be given to M. Sappey, Professor of Anatomy, or M. Gavarret, Professor of Natural Philosophy. Dr. William Stevenson, F. R. C. S., Edinburgh, has been appointed to the chair of Midwifery and Diseases of Women and Children in the University of Aberdeen, vacant by the death of Dr. Inglis. Prof. Henke, of Prague, has accepted the chair of Anatomy at Tübingen, made vacant by the death of Prof. Luschka. Mr. Brudenel Carter has been elected to the Hunterian Professorship of Surgery and Pathology in the Royal College of Surgeons of England.

The Regents of the University of Michigan have appointed Dr. Samuel A. Jones, of Englewood, N. J., to the chair ot Homœopathic Materia Medica, and Dr. John C. Morgan, of Philadelphia, to the chair of Homœopathic Theory and Practice of Medicine. The salary of each is $1,800 per annum.

Southern Medical Associations.—We learn from the *Virginia Medical Monthly* that the sixth session of the Medical Society of Virginia will convene in Richmond, October 20th. The indication is that there will be a large attendance of the profession of the State. Every regular physician in Virginia who has not yet connected himself with the Society is invited to forward his application for membership, indorsed by any member of the Society.

The Association of Medical Officers of the Confederate Army and Navy will convene at the same place on Tuesday, October 19th. All communications for this Association should be addressed to the President, Dr. S. P. Moore, Richmond, Va., or to the Secretary, Dr. S. H. Stout, Atlanta, Ga.

Going Backward.—Dr. Theodore H. Sayfert, in a paper published in the *Philadelphia Medical Times*, urges the advantages to be derived from a return to the old-fashioned method of carrying round a pocket-case of medicines, and dispensing them to patients on the spot. He argues that the small compass which active medicines now occupy would render the plan feasible and convenient.

A Complaint against the London Underground Railway.—The *Lancet* says that those whose hard fortune compelled them to travel by the underground road during the recent hot days, experienced the sensation of taking a Turkish bath, without its advantages. Serious complaint is made of the want of ventilation in the tunnels, and delicate persons are advised to travel some other way.

Correction.—The resolutions regarding the Presbyterian Hospital, published in our last issue as having been adopted by the Medical Board of the Northwestern Dispensary, should have been credited to the Northwestern Medical and Surgical Society.

Valerianate of Caffein.—Prof. Gubler (*L' Union Médicale*) recommends this preparation as of great value in vomiting from purely nervous causes. He gives one grain and a half in the form of a lozenge four to eight times a day.

A New Medical School in Glasgow.—The Glasgow Royal Infirmary is about to receive a charter as a medical school. The school already exists, and is said to be in a highly-flourishing condition as to students and facilities for teaching them.

Large Medical Classes.—The indications in this city and Philadelphia are in favor of large classes in all the colleges for the winter session.

Portable Bathing Apparatus.—Prof. A. B. Crosby recently exhibited to the New York Medical Journal Association a portable bathing apparatus which facilitates the use of water in the treatment of fevers and other diseases.

It consisted of an India-rubber sack of exceptional strength, of nearly the shape of an ordinary bath-tub, and fastened to a wooden rim, which had been made of the shape of a bathing-tub by first steaming and then bending it. A wooden collar was attached to the rim at each extremity of the tub, which supports it when placed upon a couple of chairs for use. It is then secured to the chairs by means of cords, or if desired one end may be fastened to the top of the chair while the other rests upon the floor, and the sack can be made shallow by means of cords passing beneath it and then fastened to the rim. With this apparatus a full or half, or sitz or foot bath can be given with the greatest ease, and can be done in the room of the patient, thereby avoiding any disturbance which might attend moving him from one room to another.

Dr. Crosby referred at some length to the labors of Dr. Nathan Smith and his own father, both of New England, in the treatment of the typhus of their day. Water entered largely into their method of treatment, and their success was a matter of common notoriety over that entire section of their country.

With regard to cold water for bathing purposes in the treatment of fevers, it is known to all that cold produces a shock, and in proportion to the shock given will be the height of the reaction. Therefore, in order to obtain a continued benefit, it will be necessary to repeat the application of the cold, perhaps very often, to keep down the reaction.

In all ordinary cases he is inclined to believe that as much benefit can be derived by using the spring-bath, with water at a temperature of 85° or 90°, as from the use of cold water. There is no shock produced by the warm water, and, when its application is accompanied by a certain amount of friction and the surface is left somewhat moist, the heat of the body is diminished in the most agreeable manner possible. When the surface is left a trifle moist the heat of the body produces a rapid evaporation, and with this comes the production of cold. As a rule, therefore, in all advancing cases of elevation of the temperature of the body, he directs that his patients shall be sponged with warm water, always leaving the surface moist. As an illustration of this method of using water and the benefits which attend it, he cited the treatment of 120 cases of measles while in the army. His rule was to have the men sponged with warm water, night and morning, and not infrequently at noon while scaling, and not only, by unanimous consent, added very much to their comfort, but not a single case proved fatal.—*Medical Record.*

An Infant born with Teeth.—Dr. Adolphe Dumas reports to *L' Union Médicale* a case of an infant born with teeth; there was also consecutive ulceration of the tongue, to relieve which the teeth were extracted. The child, a girl of tolerably healthy parentage, nursed well for a day, but when two days old refused the breast and attracted the attention of the physician. Dr. Dumas then found that it had been born with two lower median incisors, two or three millimetres in length, and white, with very fine, sharp edges. The right tooth appeared to be more firmly implanted than the left. On the under side of the tongue at the middle of the frænum there was a transverse ulceration with a grayish base, inflamed and with quite deep edges, and painful, as was shown by the cries of the infant when attempts were made to examine the lesion. It was evident that the ulceration was due to the irritation of the teeth, which pressed upon the tongue at its site. Local applications failing to cure, and diarrhœa and marasmus supervening, the teeth were removed. Immediately the constitutional symptoms subsided, the child nursed heartily, and in a week's time the ulceration of the tongue had healed. Twenty days later, however, Dr. Dumas was recalled to the child and found it suffering from a severe pneumonia. The infant still nursed well, and its mouth was in a healthy condition. It died when about fifty days old.—*Boston Medical and Surgical Journal*

The Coagulation of the Blood.—M. Glénard, of Lyons, finds that the influence of foreign bodies in determining the occurrence of coagulation in blood is the less, the closer their physical texture resembles that of the physical texture of the blood-vessels. Coagulation is the indication of the death of the blood. It is capable, according to M. Glénard, of being revivified as long as it remains fluid in a blood-vessel even away from the body. The blood of an ox can be transfused into a dog with success six hours after removal from the body. The coagulability is retarded, but not destroyed, by concentration of the blood, which acts in a manner analogous to the admixture of salt. An analogy may be drawn between the effect of deprivation of water upon the rotifera. Blood contained in a blood-vessel which had been removed from the body of an animal may be slowly dried, and when the vessel has a horny consistence, the contained blood may be powdered and subsequently mixed with water, in which it forms a solution capable of undergoing spontaneous coagulation, even after it has been filtered.—*Lancet.*

Memorial of John Hunter.—We publish the following appeal in the hope that it may find some response on this side of the Atlantic, as the entire medical profession owes a debt of gratitude to the great man whom in a very modest way it is proposed to honor:

Four years ago it was determined to commemorate John Hunter's long residence in Kensington—a period of nearly thirty years—by placing a memorial window in Kensington parish church. The last appeal for subscriptions is now being made. The sum in hand for the purpose amounts to £80, and further subscriptions (limited to 21*s.*) are solicited by Mr. Frank Buckland, 4 Old Palace-yard, Westminster, and Mr. J. J. Merriman, 45 Kensington Square, W. A list of donors will be published in the course of the year, and a drawing of John Hunter's house and grounds forwarded to each subscriber. Hunter will be worthily associated with Newton, Addison, and others, whose memories are similarly preserved in the church.—*Lancet.*

A Heavy Dose of Mercury.—"A few days ago," says the Gilroy (Cal.) *Advocate*, "Mrs. Anna Babb's little boy drank a pound of quicksilver. The child is less than three years old, and even in California is considered rather young to indulge in so strong a beverage. He found the mercury-bottle in some rubbish in an old trunk, while playing, and drank the whole, leaving but a few drops. The physician was sent for, who administered some light remedy. The child gave no other indication of having taken the mercury than drowsiness. The metal did not all leave the stomach for ten days, but he was about all the time, and is now as bright as ever."—*Philadelphia Medical Times.*

Extra Fees.—With a view to encourage patients and others, who may be in need of the attendance of a physician, to send him word at such time as will admit of his arranging his work for the day, the Forfarshire (Scotland) Medical Association have confirmed the resolution unanimously adopted at last year's meeting, "that all visits sent for after 10 A. M., and requiring to be attended to the same day, should be charged at an extra rate."

Boston Medical Library.—The physicians of Boston held a meeting on the 20th of August for the purpose of organizing a medical library, to consist of medical and scientific books, journals, and pamphlets, for ready reference. Offers have been made of pamphlets and journals, and of one or two private libraries. More than one hundred members have already joined, and the rooms are to be opened in October.—*Record.*

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from August 14 *to September* 13, 1875.

Milhau, J. J., Surgeon.—Relieved from duty at Fort Columbus, N. Y. H., and granted leave of absence for six months. S. O. 183, A. G. O., September 11, 1875.

Smith, A. K., Surgeon.—Relieved from duty in Department of the Missouri, and assigned to duty at Fort Columbus, N. Y. H. S. O. 183, C. S., A. G. O.

Heger, A., Surgeon.—Relieved from duty in Department of Dakota, and assigned to duty at Willet's Point, N. Y. H. S. O. 182, A. G. O., September 9, 1875.

Webster, Warren, Surgeon.—Granted leave of absence for one month. S. O. 174, A. G. O., August 30, 1875.

Bache, Dallas, Surgeon.—Leave of absence extended one month. S. O. 45, Headquarters of the Army, August 10, 1875.

Weeds, J. F., Surgeon.—Granted leave of absence for one month on surgeon's certificate of disability. S. O. 128, Department of the South, September 8, 1875.

Sternberg, Geo. M., Assistant Surgeon.—Granted leave of absence for one month on surgeon's certificate of disability. S. O. 151, Department of the Gulf, August 14, 1875.

Forwood, W. H., Assistant Surgeon.—Leave of absence extended two months. S. O. 46, Headquarters of the Army, August 12, 1875.

Middleton, J. V. D., Assistant Surgeon.—Leave of absence further extended one month. S. O.49, Headquarters of the Army, August 30, 1875.

Huntington, D. L., Assistant Surgeon.—When relieved by Assistant-Surgeon Price, to comply with paragraph five, S. O. 158, C. S., A. G. O. S. O. 93, Department of California, August 25, 1875.

Williams, J. W., Assistant Surgeon.—Granted leave of absence for one month, with permission to apply for an extension of two months. S. O. 159, Department of Dakota, August 17, 1875.

Brooke, John, Assistant Surgeon.—To report in person to the commanding general, Department of the South, for assignment to duty. S. O. 182, C. S., A. G. O.

Monroe, F. L. B., Assistant Surgeon.—Relieved from duty in Department of the South, to report to the President of the Army Medical Board, New York City, for examination for promotion, and, upon its completion, to the commanding general, Department of Dakota, for assignment to duty. S. O. 182, C. S., A. G. O.

Kimball, J. P., Assistant Surgeon.—Leave of absence extended one month. S. O. 97, Military Division of the Missouri, September 8, 1875.

Hall, J. D., Assistant Surgeon.—When relieved by Assistant-Surgeon Brown, to comply with paragraph three, S. O. 135, C. S., A. G. O. S. O. 164, C. S., Department of Dakota.

Byrne, C. B., Assistant Surgeon.—Relieved from duty at Willet's Point, N. Y. H., to report to the President of the Army Medical Board for examination for promotion, and, upon its completion, to the commanding general, Department of Texas, for assignment to duty. S. O. 182, C. S., A. G. O.

Ainsworth, F. C., Assistant Surgeon.—Assigned to duty at Fort Vancouver, W. T. S. O. 115, Department of the Columbia, August 19, 1875.

Brown, P. R., Assistant Surgeon.—Assigned to duty at Fort Shaw, Mon. Ty. S. O. 164, C. S., Department of Dakota.

Price, C. E., Assistant Surgeon.—Assigned to duty at Angel Island, Cal. S. O. 93, C. S., Department of California.

Newlands, W. L., Assistant Surgeon.—Assigned to duty at Camp Halleck, Nev. S. O. 87, Department of California, August 6, 1875.

The following-named assistant surgeons (recently appointed) are ordered to report by letter to the commanding generals of the departments named, for assignment to duty:

Curtis E. Price, Department of California; H. S. Turrill, Department of California; Joseph Y. Porter, Department of the Gulf; George E. Lord, Department of Dakota. S. O. 163, A. G. O., August 12, 1875.

Obituary.

Peter Mere Latham, M. D., physician extraordinary to the Queen, died July 20th, in his eighty-sixth year. For seventeen years he occupied the post of physician to St. Bartholomew's Hospital, during which time he had among his clinical pupils Drs. Paget, Baly, Roussell, Gay, and others who have since become distinguished in medicine. He possessed marked ability as a clinical teacher, and his lectures were remarkable for their power and eloquence.

John Churchill, of London, the eminent medical publisher, died August 3d, aged seventy-four years.

The death of Dr. Ira Allen, of Roxbury, has removed from the community a man widely known and respected for his worth and abilities. He entered the profession late in life, but his ready skill, his intuitive judgment, and his gentleness toward the suffering, had secured for him a large field of practice and endeared him to the inmates of numerous homes. In his intercourse with his medical brethren he was courteous and considerate; and he contributed several useful and practical appliances in surgery. He rose in his earlier career in the face of unusual obstacles, winning success by virtue of his indomitable perseverance and energy. His medical degree was taken at Dartmouth.—*Boston Medical and Surgical Journal, September* 9, 1875.

One of the oldest medical officers of the army, Mr. Henry Franklin, C. B., Inspector-General of Hospitals, died August 2d, at Folkestone, in his eighty-ninth year. He entered the service as hospital assistant in August, 1808, and served in the Peninsula, in the American War, and in India from April, 1842, to June, 1850, and was present at the battles of Chilianwallah and Goojerat.—*Lancet.*

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Original Communications.

Art. I.—*On the Poisons which interest the Surgeon.*[1] By W. H. Van Buren, M. D., Professor of Surgery, etc., Bellevue Hospital Medical College, etc., etc.

The subject of poisons, gentlemen (or of surgical poisons as I must designate it, in order not to go beyond my province), has come to be one of great importance to us of late. My colleague in the chair of Materia Medica will demonstrate to you that all our most potent medicines are capable of acting as poisons; and the Professor of Chemistry will unfold to you the science of toxicology, but neither will bring before you the poisonous influences which especially interest us as surgeons, and which we are called upon to understand and combat with our skill. The study of these belongs to surgical pathology. The three great divisions into which surgical affections naturally arrange themselves, namely, wounds and injuries, tumors and morbid growths, and the effects of poisons, include the whole category of so-called surgical diseases; and the last-named division is by no means the least, either in extent or importance. You perceive that I embrace within the scope of the term "poisons" a much wider range than that included in the chapter on "poisoned wounds" in the ordinary text-books of surgery. Here are considered only "dissection-wounds," the stings of insects, and the bites of serpents and of rabid animals, and, finally, glanders; but in addition to these there is a whole phalanx of virulent agents against which the surgeon is called upon to struggle in his daily efforts to control the maladies committed to his charge. The progress of exact science is every year bringing these poisonous influences more and more within the range of our perceptions, and more clearly defining them; so that, with increasing knowledge of their nature and the manner in which they cause disease and death, we are also in a better position to learn how to oppose them and destroy their effects. If I can succeed in inspiring you with a broader interest in the subject than you are likely to get from the chapter in your text-books on poisoned wounds, you will find that I have opened up to you a direct avenue to an important department of surgical pathology.

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[1] This paper comprises the substance of lectures in the preliminary course, 1875–'76, at the Bellevue Hospital Medical College.

During the last century there was no distinction recognized, by the best physicians, between the diseases known since as measles and scarlet fever, nor between the poisons causing them; these we now distinguish with absolute certainty—although we have not, as yet, discovered their special poisons, nor the antidotes to them. So also as regards syphilis, gonorrhœa, and the contagious venereal ulcer—three distinct diseases which a hundred years ago were regarded as one and the same by the highest surgical authorities. At present we recognize that each of these diseases is caused by a distinct and different poison—as different, in fact, as the poison of measles is different from that of scarlet fever, or the poison of small-pox from that of whooping-cough. In regard to the continued fevers, also, advancing knowledge has made the differences clear between typhus and typhoid, and has established the distinction between the poisons to which they are due; so clearly, indeed, has the nature of these poisons been made out, that fevers of this type are now formally recognized and spoken of as "preventable diseases." Pyæmia has been distinguished from phlebitis, and established as a blood-disease. In like manner there are, probably, diseases now grouped together and treated of in surgical works as identical (erysipelas, pyæmia, and diffuse cellular inflammation, for example), which not many years hence will be recognized as entirely distinct in their origin and nature. It is worth while to remark that advance in knowledge consists, in a large degree, in learning to discriminate, or make distinctions, where before no distinctions had been recognized.

Thus, as we learn more of the nature of these poisonous influences we are better able to discriminate between them, and to distinguish their respective effects upon the organism; and while their number increases, and they obviously multiply upon our hands, they inspire less fear than when grouped in a solid phalanx which our ignorance could not penetrate; we recognize that they are not really greater in number, but only seen somewhat more distinctly in their individual proportions, and we find ourselves in a position to attack them in detail, and with better prospect of successfully conquering them. Moreover, there are certain vague theoretical doctrines, embodied in the terms "zymotic" and "septic," which are used at the present time without any very distinct meaning attached to them, and used a good deal, it seems to me, for the purpose of covering ignorance: these terms we shall endeavor to define according to their true meaning, and by exposing just what is known of the diseases to which they are applied, even if we at the same time expose the limits of our knowledge, we shall be in better position to advance them.

There are certain poisons which we may call "medical," inasmuch as they produce diseases which are assigned conventionally to the province of the pure physician; these are the poisons which give rise to typhus and typhoid fevers, small-pox, measles, scarlatina, diphtheria, chicken-pox, whooping-cough, mumps, etc. Others, again, which cause diseases that are regarded as belonging to the surgeon, e. g., insect-poison, serpent-poison, poison from a recently-dead body, the poison of glanders, of hydrophobia, of septicæmia perhaps, of pyæmia, of erysipelas, of syphilis, of chancroid, of gonorrhœa, of malignant pustule, etc. There is a third class of poisons which complicate medical and surgical diseases equally, namely, those which are volatile and mingled with the air we breathe,

the noxious effects of which are brought to bear upon the organism mainly by absorption through the lungs: I refer to malaria, carbonic-oxide gas, sulphuretted hydrogen, etc.

Now, these constitute already a serious array of poisonous influences; and, moreover, they all differ essentially in their nature, i. e., no one of them can produce upon the organism the effects of another.

Confining ourselves to the surgical poisons, and referring to what we know of other poisons merely for purposes of illustration, let us examine these surgical poisons more closely, and ascertain if it be possible to designate or classify them more accurately than as zymotic or septic poisons, by studying the modes in which they act, or upon any other basis.

As just stated, sulphuretted hydrogen may be inhaled by the lungs; and carried thence by the blood (which absorbs it) into contact with the elements of nerve-tissue, it produces, as we know, nervous depression and nausea, and possibly death. The effect of this poison, coincident with a certain moral impression, explains the sensation often experienced on first visiting the dissecting-rooms.

The anæsthetic agents, chloroform and ether—which in a certain sense come within the denomination of poisons, for they are competent to cause death—also act by being introduced into the blood through the respiratory passages, and thus brought to bear upon the nervous centres. But, when not administered in excessive doses, or too persistently, the blood is able to rid itself rapidly of all of the noxious agents of this class, and consequently their poisonous effects soon pass away.

Notice that, as it is by the lungs that these volatile poisons are unnaturally and forcibly introduced into the blood, so it is by the lungs also that they are naturally eliminated from the blood. This power of *absorption* by the lungs is demonstrated daily in the process of administering ether and chloroform. You will probably see Bernard's famous experiment illustrating the capacity of the lungs in also *eliminating* poisons repeated by my friend the Professor of Physiology. Bernard, after having killed a bird under a bell-glass, instantaneously, by introducing a very small quantity of sulphuretted hydrogen into the air the bird was breathing ($\frac{1}{800}$), proceeded in the next place to inject a quantity of the gas directly into the vein of a dog. He had previously placed before the dog's nose a sheet of paper soaked in lead-water, and in less than five seconds after the injection of the gas into the vein the paper began to show a black stain of sulphuret of lead, which went on increasing until the whole of the poison was eliminated, and this was soon accomplished.[1] Here the bird died because it was immersed in and obliged to breathe over and over again the poisoned air; it was deprived of the eliminatory power of the lungs; it was in very much the same position as a surgical patient who has undergone an operation and is afterward confined in the bad air of a tenement-house, or in the worse atmosphere of a hospital-ward, where good ventilation is not provided. The dog, on the other hand, threw off the poison, and recovered promptly, because his lungs were free, and he had fresh air.

I desire to impress upon you the fact that sulphuretted-hydrogen gas, which is by far the most common cause of bad smells, is a poison capable of seriously depressing the powers of life, and consequently of retarding recovery from a surgical injury; and that it can always be got rid of through the lungs, provided that the patient is furnished with an ample supply of pure fresh air.

Again, a poison may be introduced into the circulation by simple *inoculation*, in minute quantity, as by the point of a lancet. One of the uses of the epidermis, which covers our bodies like a flexible varnish, is to protect the thin-walled blood and lymph vessels which lie beneath it from absorbing noxious substances from without, by the process we call *osmosis*—which, after all, is only a sort of inhalation and exhalation, similar to respiration—but of liquids instead of gases. Hence, when the epidermis is abraded, or removed, there is no impediment to absorption; if we scratch it away at any point and apply a poisonous substance, that poison, if soluble, will be at once carried into the blood: this, we do, in fact, in the little operation of vaccination. A poison thus introduced into the blood will straightway produce its peculiar effects, slowly, or rapidly, according to its nature; if active and deadly like that of the East-Indian cobra or hooded snake, it will cause death as soon as the circulating torrent shall have brought the poison into contact with the nerve-cells of the brain. Small animals (in the experiments of Prof. Fayrer[1]), such as fowls, when bitten by an active snake of this species, died almost instantaneously; and dogs have died, in several instances, in from thirty to forty-five seconds. When the limb bitten by the snake had been previously encircled by a tight ligature, the action of the poison was delayed; but as soon as the ligature was removed the animal succumbed: thus proving the conveyance of the poison by the blood. The famous *curare* or *woorara* affords another example of this mode of action. This poison may be taken into the stomach with impunity in sensible quantities; the Indians kill game by means of arrows poisoned with *curare*, and eat freely, without harm, the birds and animals thus destroyed; but if the minutest portion of the poison is brought in contact with the circulating blood, death follows inevitably.[2] This apparent paradox is explained by the fact that absorption from the digestive surfaces when sound takes place very slowly in comparison with absorption by the capillary blood-vessels and lymphatics, and that coincident elimination of hurtful matters from the blood is going on so constantly and rapidly by kidneys, lungs, skin, and bowels, that unless thrown directly into the blood by inoculation, enough of the poison cannot be brought at any one moment in contact with the nerve-cells to produce its full poisonous effects. We have daily evidence that the injection of a few drops of morphine under the skin produces a more prompt and thorough effect than the same amount if taken into the stomach.

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[1] "Leçons sur les effets des substances toxiques," etc., Paris, 1857, p. 58.

Physiologists, in studying the action of this singular poison, curare, found that its terribly fatal effects are only temporary; and that by keeping up artificial respiration for a time, until the influence of the poison has exhausted itself, the animal's life can be saved, and no injurious after-effects follow. In fact, it is in constant use in the laboratory, for keeping frogs quiet, in many experiments, while studying the phenomena of circulation. Again, you are all familiar, probably, with the mortal effects which may be produced by inhaling the fumes of burning charcoal, a mode of suicidal poisoning often made use of by unhappy people of both sexes in France—one of the few French fashions which our national good sense has prevented us from following. When this poison is inhaled, its effect is felt in the first instance by the blood itself, and not by the nervous centres, as in the examples already cited. The *carbonic oxide*, which is the poisonous agent, acts directly upon the red globules of the blood, forming an instantaneous chemical compound with the hæmaglobulin which is their main constituent. Now, the use of this hæmaglobulin is to absorb oxygen from the air in the lungs and carry it to the tissues, and there part with it, a function necessary to the continuance of life. But if a suicidal Frenchman is discovered in the act before his red globules have been too extensively killed by the poison, and is carried into the fresh air, he will at once revive, and, after a very severe headache, he will pretty rapidly recover. We all know how promptly the lassitude, or languor, caused by hot-air furnaces is relieved by going out into the fresh air, and in this case we are dealing with the same carbonic oxide.

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[1] "On the Action of the Cobra-Poison," *Edinburgh Medical Journal*, vol. xiv., part i., p. 522, July to December, 1858.

[2] Bernard, *op. cit.*

Here is another instance of a poison capable of causing death in a limited time, the effects of which pass off rapidly as soon as the poisonous influence is removed.

Thus, there are poisons, even of the most deadly nature, which when introduced into the blood produce their effects by contact with the nerve-centres, or by spoiling the elements of the blood itself; and yet these effects are but temporary and evanescent, and, when life is not compromised, they may pass off so promptly and entirely as to leave no appreciable consequences behind them.

On the other hand, there are also poisons which, similarly introduced into the organism, produce their effects *after so-called periods of incubation, and then pass away*, leaving traces which may remain during life—as in the eruptive fevers; some again which act slowly, irregularly, with intermissions—their effects being always brought to bear upon the nerve-centres through the blood—as in malarial and pyæmic poisoning; one which has been, so far, always promptly mortal—that of hydrophobia; another, that of syphilis, which manifests a tendency to linger indefinitely and to affect all the tissues in turn; and others, finally, of which the action is entirely local—as the poison of most insects, of "poison-vines," of gonorrhœa, of chancroid.

There are many features about poisons which, in the present state of our knowledge, are mysterious, unaccountable, and seemingly capricious. The deadly poison of the Indian cobra—the effects of which are promptly mortal to animals of every sort—is innocuous when applied to another cobra; these reptiles bite each other cruelly, but no ill effects follow.[1] On the other hand, Dr. Weir Mitchell's experiments upon the rattlesnake would seem to demonstrate conclusively that the American serpents can, and do, poison themselves, and each other.[2] According to Livingstone, the famous tsetse-fly, which renders certain regions in Africa almost uninhabitable, is harmless to man, to the goat, and to all wild animals, but fatal to domestic animals. The bite of a small number of these insects so poisons the blood of cattle and horses that they die, without exception, in a rapid and steady decline, and their flesh is found thoroughly altered both in appearance and consistence.[3] Thus, in man, examples are constantly occurring of immunity from the action of poisons, in explanation of which we can only say that it depends upon a peculiar condition of system which is unknown to us. According to the experiments of Bernard (*op. cit.*), prussic-acid when introduced into the blood arrests the action of the heart, without affecting the nerves; strychnia causes death by *paralyzing* the nerves of sensation; curare kills by paralyzing the nerves of motion, leaving those of sensation intact. Opium notoriously blunts the consciousness of pain ; the poison of the mad dog, on the contrary, intensifies it to the last degree, so that the contact of a breath of air causes agony. All these and many more curious phenomena might be cited as ultimate facts, which we recognize, but cannot, as yet, account for ; we speak of them as inherent, essential, or specific qualities of such or such poisonous drugs. Obviously these facts are too few and too imperfectly understood to serve as a basis for permanent classification.

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[1] Fayrer, *op. cit.*

[2] "Researches on the Venom of the Rattlesnake," "Smithsonian Contributions to Knowledge," 1860, p. 63.

[3] "Missionary Travels and Researches in South Africa," by David Livingstone, LL. D., D. C. L., p. 81, *et seq.* London, 1857. From Figuier's Insect World." New York: D. Appleton & Co., pp. 74, 286.

You have a right, before I proceed further with these general considerations, to ask for a definition of the term "poison," and this is the best that I can give you : It is the generic name of all those substances which, when introduced into the animal economy by absorption either through the skin, lungs, or digestive surfaces, possess the power of attaching themselves to the constituents of its tissues or humors, and of disturbing the functions of the economy, or causing death.[1]

Poisons may be mineral or organic in their origin ; crystallizable or volatile in their form.

They all act, ultimately, by uniting themselves, molecule by molecule, to the immediate principles of the living tissues, which they modify or decompose.

Certain poisons manifest affinities for particular parts : as arsenic for the stomach, strychnia for the spinal cord, carbonic oxide for the red blood-globules, chloroform for the nerve-cells of the brain, mercury for the mouth.

I have said that the term poison is generic : now, there is a species of poison known as *venom*, as of insects and serpents ; another always spoken of as a *virus*—as of small-pox and syphilis ; and a third, applied to typhus and ague poison, etc., called *miasm*. All surgical poisons come under one or another of these specific designations ; and, as the terms are in constant use, it is well for you to attach a definite meaning to them.

The term "venom" is applied to special humors secreted by certain glands of animals, or indeed of vegetables—as to the poison of the mosquito, of the rattlesnake, or of the nettle. This species of poison owes its power to some organic compound elaborated by the vital process of secretion; it retains its venomous properties after desiccation, and after the death of the organism in which it has been elaborated—as in the instance of the Spanish-flies, the cantharides; in fact the venomous quality persists until the substance itself undergoes decomposition. Echidnine, the active poisonous principle of the venom of the viper, which has been isolated by chemical process, is a good specimen of what pathologists call an "animal substance."[1] It is of a gummy consistence and aspect, contains nitrogen, is soluble in cold water, neutral in its reaction, not coagulable at 212° Fahr.; alcohol precipitates it, but water redissolves it—which is its distinctive quality; it blackens the blood, and prevents the coagulation of its fibrin.

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[1] "Robin et Littré," article "Poison," edition 1873, Paris.

Mitchell also isolated the active toxic element of the venom of the rattlesnake, which he describes as an albuminoid body of neutral reaction; of a pale-yellowish tint when dried, and resembling echidnine in all essential particulars. He distinguishes this substance by the name of *crotaline* (p. 37). Mitchell says: "It is difficult to conceive of the singular energy of the venom of the rattlesnake without carefully-conducted experimental research, or of the tenacity with which its powers are preserved in the presence of violent chemical reagents and extremes of heat and cold. The dried venom retained its potency after two years of climatic changes; nor was it in any degree impaired by strong sulphuric and muriatic acid, ammonia, chlorine-water, soda, or potassa. Iodine and tannic acid seemed to prevent its local but not its constitutional symptoms. Freezing did not alter the powers of the venom, and the most prolonged boiling was inadequate to destroy its deadly qualities" (p. 44, *et seq.*).

A "virus" is the result of a peculiar chemico-vital change which takes place in the solid or liquid organic substances naturally existing in every living body, and elaborated by its vital machinery. A virus is intangible; it cannot be isolated by chemical process; and can be studied only in its effects upon living bodies. Virulent matters, thus begotten, act by *transmitting to other living beings a tendency to take on the*

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[1] Analyzed by Prince Charles Lucien Bonaparte. Mitchell, *op. cit*, p. 35.

same changes which they themselves are undergoing, or have undergone.

I will remark here, that these changes which a virus has the peculiar power to set in motion in the living body are not the same as those caused by the presence of a ferment, although they resemble the process of fermentation so nearly that it has grown into a custom to speak of them as "zymotic." This term, derived from the Greek (*ζύμωσις*, fermentation), was originally applied to contagious and epidemic diseases because the poisons causing these diseases seemed to work like the yeast-plant in beer, in regard to the quality and power they manifested of reproducing and multiplying themselves. The term was intended to convey the idea of *resemblance to the process of fermentation*, and not of *actual fermentation*. Since Pasteur advanced his theory that the process of putrefaction is also in reality a process of fermentation, brought about by the microscopic fungi known as bacteria which, he says, play the same part in causing putrefaction that the spores of the yeast-plant perform in ordinary alcoholic fermentation, the fashion has sprung up of attributing to bacteria the properties I have enumerated as belonging to virulent substances. That this is an error, which is entirely opposed to the conclusions of the latest and best authorities, I shall shortly demonstrate to you. Meanwhile I must ask you not to ascribe virulent properties to bacteria, which are nothing more than microscopic fungi, and are possibly as perfectly innocent in their nature as maggots in a wound.

The changes which follow the introduction of a virus into a living body are sometimes immediate, and at others delayed, apparently, for weeks—sometimes for months; they vary according to the nature of the lesion, of the virus itself, or of the tissue or humor affected. In the action of the vaccine virus, of that of the contagious venereal ulcer or chancroid, or of the virus of syphilis itself, are seen examples of this variety of poison.

Virulent substances, as in the case of vaccine matter, can be desiccated and preserved, under favorable circumstances, indefinitely. They retain their power until overtaken by decomposition. Please notice this fact, for it explains why there is more danger from a dissecting wound received in opening a recently-dead body, than in the prolonged manipulation of a subject advanced in putrefaction. A virus generated by the changes which immediately succeed death must be destroyed by the decomposition that necessarily follows—in the language of Robin, "putridity destroys virulence"—because the virus, in being decomposed, ceases to be a virus.[1] We see examples of this phenomenon constantly in our clinical experience: an advancing chancroidal ulcer, when overtaken by phagedæna or sloughing, has its virus destroyed in the common death of the virus and of tissue with which it is in local contact, so that when the slough separates a healthy sore is left behind. We actually imitate and adopt this as a mode of cure, when we apply a powerful caustic to the virulent ulcer; for the caustic decomposes the virus at the same time that it kills the tissues which are undergoing change by the virulent contact.

The term "*miasm*" is applied to virulent organic substances, either volatile, or given off by volatile liquids during evaporation, which come from animal or vegetable tissues in process of decomposition, or from the sweat, pulmonary exhalations, or fecal evacuations of living beings, healthy or diseased. A miasm is evidently almost identical with a virus—the idea of volatility being superadded; therefore, with this exception, the terms are synonymous. Miasms may be conveyed by the air and by the clothing, and hence become the means of transmitting diseases known as contagious or epidemic. We speak of the poisons of typhus and typhoid fevers as miasms, but the most common application of the term in our country is to that form of poisonous emanation which begets the large class of diseases known as "malarial." Miasmatic exhalations from the soil poison the air, and thus beget malaria. The term miasm is properly applied to the poison of erysipelas; less so, perhaps, to that of pyæmia; certainly not to that of a dissecting-wound.

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[1] "Comptes rendus de la Soc. de Biologie," 1868. Weir Mitchell states, however, that the venom of the rattlesnake killed promptly when it was smelling horribly and full of "animalculæ," vibriones, and "rotiferæ." He says he is unable to state from his own experience what extent of putrefactive change might be needed to destroy its poisonous quality. (*Op. cit.*, pp. 32, 51.) I would remark that the active principle of the rattlesnake-poison may be an alkaloid (like morphia), and not liable to putrefaction.

In attempting to get at enough general facts to justify a classification of surgical poisons, we have at least established definitions with some pretensions to accuracy of the terms usually applied to them; but it is plain that surgical poisons cannot be classed according to their mode of action, because all of them that place life in peril act upon the living body very much in the same way, namely, by getting into the blood and perverting the functions of this vital fluid. The singular and constant affinities manifested by some poisons for special organs and tissues, already noticed, are always to be kept in mind in seeking for antidotes and remedies; but these qualities do not avail for classification. We can only say of them that these poisons act upon the several parts toward which their affinities impel them, by means of the peculiar contaminations which each of them impresses upon the blood.

Some of the poisons that interest us as surgeons are inorganic in their origin, although a large majority have their source in organized matter: of the latter some are animal and others vegetable in their nature; but these differences in source are equally unsafe as a basis for classification, for, as the light of science grows stronger, the dividing lines between the great kingdoms of Nature are fading out. Moreover, there is no marked difference of action in the poisonous substances that come from these different sources, whereby we can establish distinctions between them as mineral, animal, or vegetable: arsenic, chloroform, the compounds of cyanogen—the poison of the rattlesnake, the cobra, or of the rabid dog—marsh-miasm, strychnia, curare—present in each group almost equally prompt and deadly poisons in the varying forms of solid, liquid, or vaporous gas; but they all cause death in a similar way—by stopping the action of vital organs when brought in contact with them by means of the blood.

We have learned enough, then, of the general nature of poisons to justify this conclusion, that the present state of our knowledge does not permit classification on the basis of difference of action, or of difference of source, and that all (surgical poisons, at least) would seem to act through the blood. They act either upon the elements of the blood—as in the reaction between carbonic oxide and the red globules, or they mix with it mechanically, or they disturb the chemical stability of the albuminous compounds of its plasma—as when the cobra-poison prevents coagulation of its fibrin, or they set agoing the mysterious changes by contact, or presence, through the peculiar power which we have ascribed to virulent substances. The resultant action of the blood, thus altered, upon the elementary cells and tissues of vital organs comprises the whole pathology of surgical poisons. In order to estimate at its true value this idea, which forms the basis of surgical pathology—not only of poisons but of most general diseases—I must ask you always to think of the blood, in accordance with the teachings of modern physiology, as a sort of internal atmosphere, in which all the tissues and organs of the body are suspended, in which all the organs and tissues of the body are continually bathed, and from which they derive all their sustenance. If you can succeed in doing this, it will not be difficult for you to conceive why changes in the blood explain derangements of function, alterations of tissue, or even arrest of the phenomena of life. You will be prepared to understand why the term "blood-poisoning" is so constantly on the lips of the clinical teacher in the wards of the hospital, and of the pathologist in the dead-house.[1]

Before proceeding to study in detail the surgical affections which have their origin in poisons, or are complicated by them, we must if possible get a clear idea of the meaning attached to the word "septic" and to the phrases "septic influences," "septic poisoning" and the compound word "septicæmia." These terms are in constant use by the latest and best writers, and the ideas intended to be conveyed by them are sometimes a trifle vague, and not easily explained. An attempt to define them will bring us face to face with the most difficult questions which at present occupy the attention of pathologists—

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[1] After all, "blood-poisoning" is only a term which has been adopted with a certain signification, and we do not know with absolute certainty that it is the *blood* that is poisoned. It is quite possible that the elements of the tissues, the cells, are poisoned, are unfit to do their work, and the condition of the blood may be only secondary.

questions upon which the best minds and the best observers differ fundamentally. I will endeavor to state to you the facts succinctly, and as impartially as I can.

The word "septic" means "that which pertains to putrefaction." The idea of a "septic influence" is of a something that acts upon the tissues and humors of our living bodies in such a manner as to dispose them to take on putrefaction. Naturally it must kill them first, and then, the vital quality that resists chemical decomposition being withdrawn, it must dispose them to fall into putrefaction more promptly and readily than is usual after death from other causes. A substance that will produce these effects is properly called a "septic poison." We have an example of a septic poison in the venom of the rattlesnake. In one of Dr. Weir Mitchell's experiments he exposed a healthy active frog to be bitten by one of these reptiles. In two hours, after the usual symptoms of rattlesnake-poisoning, it was dead. "In twenty-four hours the muscular parts about the bite were almost diffluent, while the rest of the frog had no odor, or any other sign of putrefaction."[1] He says "the final influence of the venom upon the muscular structure was extremely curious." In every instance it became softened in proportion to the length of time the venom remained in contact with it, so that, after even a few hours, in warm-blooded animals, and rather a longer time in the frog, "the wounded muscle became almost diffluent, and assumed a dark color and somewhat jelly-like appearance. The structure remained entire until it was pressed upon or stretched, when it lost all regularity, and offered the appearance, under the microscope, of a minutely granular mass dotted with larger granules." In another experiment some blood was drawn from a healthy dog, who was then exposed to be bitten by a rattlesnake. In about thirty-five minutes the dog was dead. At the end of twenty-four hours the blood drawn before the dog was bitten was found as yet unaltered, and it had no unpleasant odor; but the blood in the dog's heart "was already unpleasant in smell, and that from the wound was quite putrid."[2] You have here an illustration of the effects of a septic poison from a native reptile observed by an American physiologist, than whom there is no better authority, and these cases are in accordance with the general results of his very valuable researches into the effects of this venom. Mitchell concludes that it is "clear that in *slow venom-poisoning* the *blood-plasma became profoundly altered;*" in cases of *more rapid death* the direct effect of the poison *upon the nervous centres* was the efficient cause.

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[1] *Op. cit.*, p. 56.

[2] Ibid., p. 92.

As every fact concerning this curious poison, from so reliable an observer, possesses great value, I will ask your attention to the following statement:[1] "The clear poison presented no points of interest when viewed microscopically . . . . Like most albuminoid matters the venom entered into decomposition when long kept in the moist state, but although it then developed vibriones, and even low confervoid growths, and smelt most horribly, it was still poisonous. How long it would retain its virulence under these circumstances, and what extent of putrefactive change might be needed to destroy this quality, I cannot state from my own experience." Again, describing a specimen of diluted venom which had undergone decomposition and smelled badly, he says: "The production of this animalized and indescribable stench was accompanied by the appearance of *vibriones*, and, a few days later, of *rotifera* and other minute forms of animal life."[2]

Observe, if you please, that this deadly venom, when fresh, contained no microscopic elements; but when decomposition began, the low forms of life made their appearance.

I call your attention to this fact especially, because it has been of late assumed, even by prominent scientists, that these very same low forms of life, now usually spoken of under the name of bacteria, constitute *the essential elements of putridity*, and *the active principle in most, if not all, poisons of animal origin.* For the adherents of this doctrine, putrefaction is a process of fermentation precisely analogous to that of beer; a species of bacterium—the *B. termo*—playing the part, in the organized tissue and humors, of the yeast-plant of the beer—

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[1] *Op. cit.*, p. 32.

[2] *Op. cit.*, p. 53. When Mitchell wrote, in 1859, vibriones were regarded as animals; now they are classed with other microscopic fungi or mushrooms.

the *Torula cerevisiæ.* Pasteur, who discovered the nature of the silk-worm disease which was impoverishing France, and applied a successful remedy to it, is the originator and most able advocate of this theory of putrefactive fermentation, which, on the other hand, is strongly opposed by the school of Liebig, in Germany, and not admitted by Robin and his followers in France.

In the most recent and best treatise on the natural history of plants, by Cohn,[1] of Breslau, bacteria are described as a genus of microscopic vegetable growths nearly allied to the fungi or mushrooms, and still more closely to the mould, rust, and smut family, but different from either. Cohn divides one of his tribes of bacteria, the "micrococci," into three groups, according to their supposed power to produce pigment fermentation, or disease; and again subdivides the disease-producing group, according to the particular disease in which it is found, into the *micrococcus vaccinæ*, *m. diphtheriticus*, *m. septicus*, *etc.*

This would be certainly a very clear and accurate definition of the word "septic," in all its applications, if the facts upon which the theory is built will support it; it would simply imply the presence of the *micrococcus septicus*, or any one of the sub-varieties of this microscopic organism, in any form of disease to which the term "septic" might be applied, and there the duty of the pathologist would end—the wonderful reproductive power of the micrococcus, as it successively invaded the tissues, would account for all further changes. Moreover, the prevention and therapeutics of these deadly diseases, most of which are epidemic and contagious, would be equally simplified; they would be compassed by learning enough of the conditions of life and of the habits of bacteria to prevent their presence or their proliferation in any given case of "septic" disease, and straightway the disease would be within our control.

This "germ-theory of disease," as it is called, has proved very seductive, and it has widely influenced the medical mind. It explains so readily the phenomena of infection and contagion, it is so easily grasped by the mind, and there are so many analogies to be cited in its support, that in the absence of clinical experience, and the tests of daily practice and actual contact with disease, the fascinations of the theory have gained for it many advocates, even in distinguished quarters. The eloquent Huxley, moved by Cohn's description of the *empusa muscæ*, a microscopic fungus which invades and destroys whole regiments of the domestic fly in autumn, expresses but little doubt that the nature and causes of scarlet fever will one day be as well understood as those of the silk-worm disease have become through the efforts of Pasteur, "and then," he adds, "the long-suffered massacre of our innocents will come to an end."[1] My eminent contemporary Prof. John C. Dalton, in view of the general interest which this subject commands, has recently made a lucid exposition of it before the New York Academy of Medicine, setting forth its claims to investigation, and the beneficent prospects it suggests. To this, and to an exhaustive paper on "Bacteria and their Influence upon the Origin and Development of Septic Complications of Wounds," undertaken at my suggestion, last year, by my friend Dr. L. A. Stimson, I must refer those of you who desire to inform yourselves thoroughly on this interesting subject.

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[1] "Beiträge zur Biologie der Pflanzen," vol. ii., p. 136.

The time at my disposal will permit me only to give you conclusions; and these conclusions, as I have already foreshadowed, are adverse to the theory that putrid poisoning is due to bacteria or living organisms. These minute organisms find their most favorable conditions of life wherever decomposition is imminent, and, inasmuch as their spores are almost omnipresent—in the air we breathe, in the water and food on which we live, and in the secretions of our own bodies—they are rarely absent in a wound or injury where tissue is dying or dead. Here they find the conditions which suit them, and here they forthwith proliferate; but they are only epiphenomena, and not the cause of the changes that follow—nor yet of the poison or virus sometimes (not always) generated in dying or dead parts. This is the conclusion to which clinical observation leads the practical surgeon; this is the conclusion reached by the foremost among the surgical pathologists of Europe,

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[1] "Address before the British Association for the Advancement of Science," September, 1870.

Billroth, of Vienna, who published last year the results of a long and careful investigation of this subject.[1]

There is, then, a "septic poison," of which serpent-venom is a fair type, which is the undoubted cause of the symptoms ascribed to putrid poisoning, over and above the depressing effects of sulphuretted hydrogen—and this septic poison is not bacteria. What, then, is it? As far as we know, septic poison is an albuminoid substance (in this respect like the serpent-poison), which is formed, or forms itself, during the tumultuous disturbance of the vital processes, in a part under the influence of the inflammatory or locally fatal changes which result from injury. It is an albuminous substance newly begotten of materials derived from the albuminous blood-plasma, developing virulent properties as a consequence of chemico-vital changes in its constituent elements; in short it is a virus.[2]

This septic virus may be soluble, and therefore absorbable into the blood by capillaries or lymphatics; and, as a virus, it is of course capable of communicating to and inciting in the living humors or tissues with which it comes in contact, the changes it has itself undergone. If this virus should cause rapid death, the tissues and humors of the victim will be found, like those altered by the snake-poison, ready to fall into putrefaction, and probably, therefore, full of bacteria; but it is the virus which has caused the fatal result, and not the bacteria. The blood of this victim inoculated into another animal might give rise to symptoms of putrid poisoning in that animal by conveyance of the virus.[3] I conclude that it was a virus of this nature that killed the rabbits in the experiments of Davaine, which excited so much interest and discussion some two or three years ago in the French Academy. In truth, the poisonous effects of putrid matter have been known for a long time: in 1815 Orfila killed dogs by inoculation of putrid blood, bile, and fragments of putrid tissue; in 1827, Hamont (quoted by Coze and Feltz of Strasburg) killed a horse by means of injections of putrid pus taken from a gangrenous abscess, and a second horse with blood taken from the first—the first dying on the fourth and the second on the fifth day;[1] and, in 1835, Piorry first described the symptoms which precede death from putrid poisoning, to which he gave the name of "septicæmia," which means literally putrid poison in the blood; and, whether the poison is regarded as a ferment, or a virus, the name would be equivalent to putrid blood.

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[1] "Ueber Coccobacteria Septica."

[2] The development of a virulent poison in dead and dying animal tissues is hardly more remarkable than the fact of the secretion of a similiar substance from the blood of a snake, by the poison-gland of the reptile. Mitchell found the substance of the poison-gland of the rattlesnake, when well washed of its secretion, entirely free from any venomous quality; he expressed its liquid juices and tested them by inoculation on sensitive birds, without result. And yet the epithelium lining the follicles and ducts of this gland possesses the curious power of secreting from the blood, by recombination of its albuminous constituents, the substance which constitutes the deadly venom of the rattlesnake.

[3] In a paper submitted to the French Academy in 1873, M. Onimus reported the following experiment—made under the direction of Prof. Robin:

This septic virus is not necessarily always the same, either in its nature or its effects; for it takes its origin in tissues whose nutrition is interfered with by what we call "acute inflammation," as well as in those which are dying, or dead, from crushing, bruising, or laceration. Neither is it always necessarily absorbed into the circulation, for a barrier of healthy granulations might prove an obstacle; in this event the virus may expend its noxious influence locally, in causing interference and delay in the process of repair, and giving rise to what is known as "unhealthy" or "diffuse" inflammation. It is analogous to the virus of pyæmia and of erysipelas, and, for aught we know to the contrary, may coexist with these in the system. The symptoms of septicæmia will next occupy us.

He placed putrefying blood in a bag of animal membrane, and immersed the whole in distilled water, which, after a few hours, was found to be full of bacteria. Inoculation with the blood produced the usual results, but inoculation with the water caused no septic symptoms whatever; on the other hand, the same blood, when subjected to various processes which removed or destroyed the bacteria, retained its virulence, and from these experiments he drew the conclusion that the virus of putrid infection is not an organized ferment, not bacteria, but an albuminoid substance.

Stimson, "Bacteria and their Effects," POPULAR SCIENCE MONTHLY February, 1875, p. 403.

[1] Stimson, *op. cit.*

Art. II.—*Pneumatometry: the New Means of Diagnosis in Diseases of the Respiratory Organs.*[1] By Louis Elsberg, A. M., M. D., Professor of Laryngology and Diseases of the Throat in the Medical Department of the University of the City of New York, Fellow of the New York Academy of Medicine, etc.

Definition.—Pneumatometry (from πνευμα, "air," appertaining to the breathing, and μετρον, "measure,") is the method of measuring inspiratory and expiratory force. For clinical purposes, the extreme respiratory power is measured which the patient is capable of exerting. This maximum, which is nearly constant for the same person in normal condition, varies characteristically in disease. The great value of pneumatometry for diagnosis consists in the fact that each of the two phases of breathing, inspiration and expiration, can be measured objectively and in figures, showing the deviation from health of either the one or the other separately, as well as the relation of the two to each other.

History.—A century and a half ago the Rev. Dr. Hales engaged in some curious researches upon the air. In the course of his experiments, he had occasion to breathe out of and into closed air receptacles, and, being desirous of ascertaining the force he could bring to bear, employed a mercury manometer. So far as I can find out, he is the first who entered upon such an investigation. The book in which he made it known was printed in 1726. Speaking of the use of bladders or leather bags filled with air, for temporarily sustaining respiration in a room filled with suffocating vapors, in case of fire, for divers, etc., he says: "But in every apparatus of this kind great care must always be taken that the inspiration be as free as possible, by making large passages and valves to play most easily. For though a man by a peculiar action of his mouth and tongue may suck mercury 22 inches [about 558 millimetres], and some men 27 or 28 [685 to 712 millimetres] high, yet I have found by experience that, by the bare inspiring action of the diaphragm and dilating thorax, I could scarcely raise the mercury two inches [50 millimetres]. At which time the diaphragm must act with a force equal to the weight of a cylinder of mercury, whose base is commensurate to the area of the diaphragm and its height two inches, whereby the diaphragm must at that time sustain a weight equal to many pounds. Neither are its counteracting muscles, those of the abdomen, able to exert a greater force.

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[1] Read before the Academy, October 7th, 1875.

"For, notwithstanding a man, by strongly compressing a quantity of air included in his mouth, may raise a column of mercury in an inverted syphon, to five or seven inches in height [126 to 178 millimetres], yet he cannot, with his utmost strainings, raise it above two inches [say 51 millimetres] by the contracting force of the muscles of the abdomen; whence we see that our loudest vociferations are made with a force of air no greater than this."[1] I have quoted this passage in full here, because it is very interesting as presenting the result of the first pneumatometric investigation, although, as we shall see hereafter, the figures given do not accord with those that have since been ascertained.

Whether any one soon followed in the path of research thus opened up by Hales I do not know. More than a hundred years later, in 1844, Valentin published his text-book of "Human Physiology," and in it recorded his observations for determining manometrically the respiratory power of an adult healthy man. To the apparatus employed he gave the name Pneumatometer; it was a modified hæmadynamometer, and, simple as it was, the instrument was essentially the same as that in use at the present day.[2] In 1845 Mendelsohn published some investigations in pneumatometry.[1] In 1846 Hutchinson followed with a large number of elaborately conducted observations and experiments.[2] In 1853 Donders added his valuable contributions.[3]

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[1] "Statical Essays: containing vegetable staticks or an account of some statical experiments on the sap in vegetables, being an essay towards a Natural History of Vegetation: of use to those who are curious in the culture and improvement of gardening, etc., also a specimen of an attempt to analyse the Air, by a great variety of chymio-statical experiments, which were read at several meetings before the Royal Society. By Steph. Hales, D. D., F. R. S., Rector of Farringdon, Hampshire, and Minister of Teddington, Middlesex. The third edition, with amendments." London, 1738, vol. i., pp. 270 and 271.

[2] "Lehrbuch der Physiologie des Menschen." Von Dr. G. Valentin, ordentl. Professor der Physiologie und vergleichenden Anatomie an der Universität Bern. Braunschweig, Friedrich Vieweg und Sohn, 1844, vol. i., p. 524, *et seq.*

But notwithstanding the labors of these investigators—notwithstanding that the two last mentioned, Hutchinson and Donders, had even particularly pointed out the fact of the importance of these researches for recognizing disease—all these publications remained barren of practical results for medicine until Waldenburg, less than four years ago, introduced the method of pneumatometry as a means of diagnosis.[4] For eighteen months previous to that time Prof. Waldenburg had studied and tested the method, had demonstrated it in his courses to medical students, and had shown it to me during my stay in Berlin.

The Instrument.—Waldenburg made the original instrument of Valentin more convenient, and has described and figured it in his latest publication on the subject.[5] Eichhorst[6] has added to Waldenburg's apparatus an air-tight stop-cock, which I have replaced by an automatic valve.

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[1] "Der Mechanismus der Respiration und Circulation oder das explicirte Wesen der Lungenhyperämien." Von A. Mendelsohn. Berlin, Behr'sche Buchhandlung, 1845.

[2] "On the Capacity of the Lungs, and on the Respiratory Function, with a View of establishing a Precise and Easy Method of detecting Disease by the Spirometer;" by John Hutchinson, Surgeon (with numerous Woodcuts). "Medico-Chirurgical Transactions," published by the Royal Medical and Chirurgical Society of London, vol. xxix. (second series, vol. xi.), London, 1846, pp. 137–252.

[3] "Beiträge zum Mechanismus der Respiration und Circulation im gesunden und kranken Zustande." Henle and Pfeufer's *Zeitschrift für rationelle Medicin*, N. F., Bd. iii., Heidelberg, 1853.

[4] "Die Manometrie der Lungen oder Pneumatometrie als diagnostische Methode." Von Prof. Dr. L. Waldenburg. *Berliner klinische Wochenschrift*, Jahrgang 8, No. 45, 1871, p. 541.

[5] "Die pneumatische Behandlung der Respirations- und Circulationskrankheiten im Anschluss an die Pneumatometrie, Spirometrie und Brustmessung. Bearbeitet von Dr. med. L. Waldenburg, Professor E. O. an der Kgl. Friedrich-Wilhelms-Universität in Berlin. Mit 30 Holzschnitten. Berlin, August Hirschwald, 1875.

[6] "Ueber die Pneumatometrie und ihre Anwendung für die Diagnostik der Lungenkrankheiten." Von Hermann Eichhorst aus Königsberg. *Deutsches Archiv für klinische Medicin*, Bd. xi., Heft iii., 1873, p. 268.

Fig. 1.

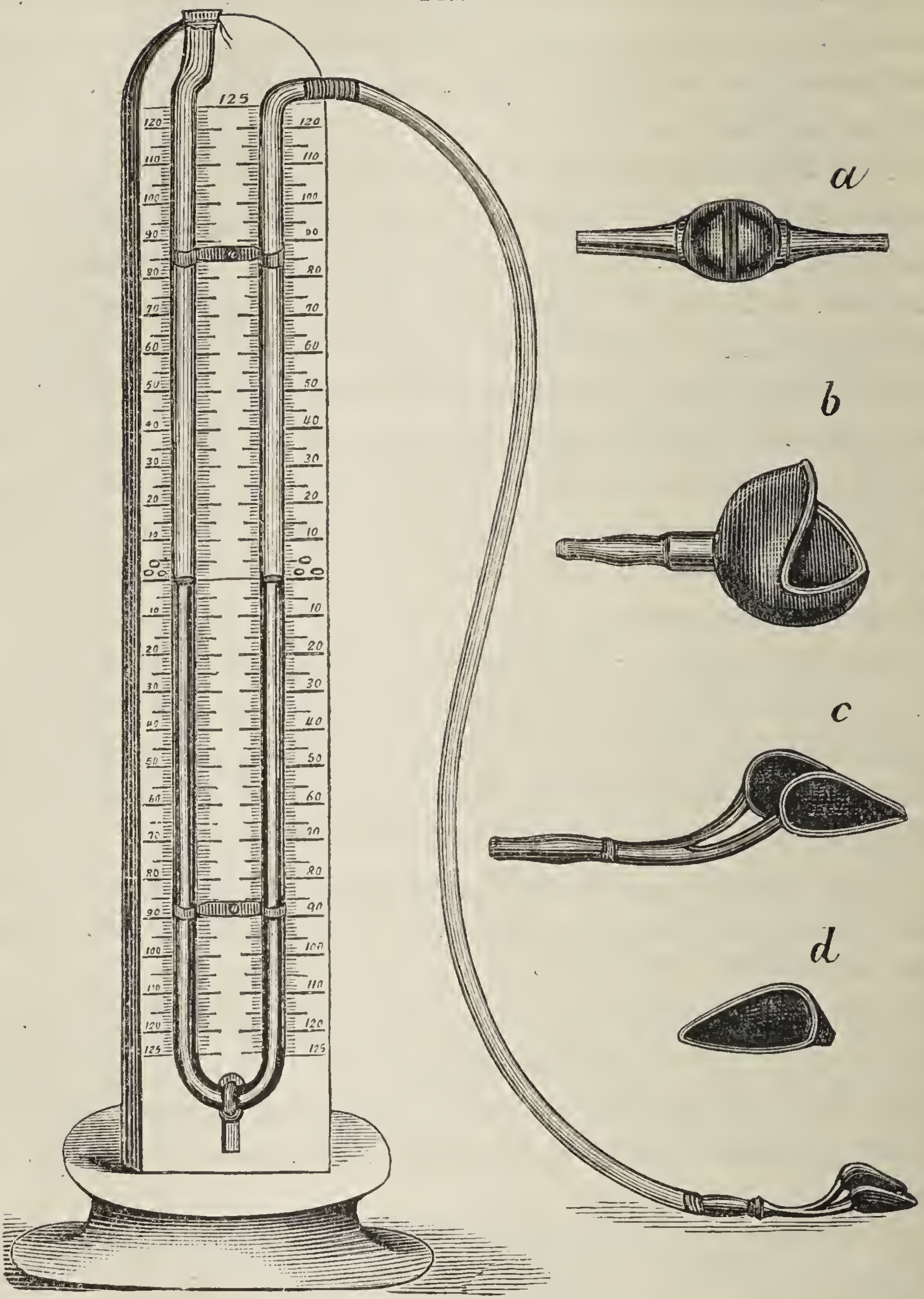
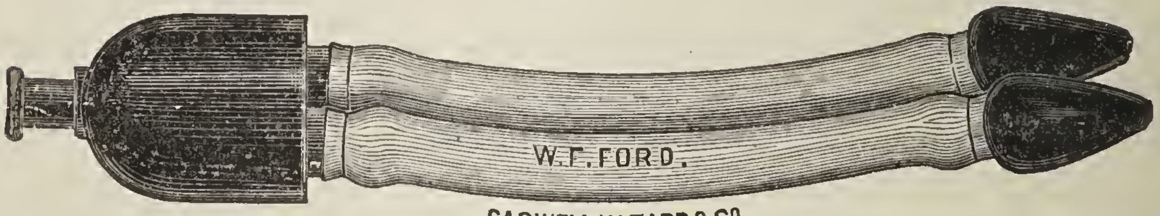


Fig. 2.



The pneumatometer, as I have had it constructed and represented in the above woodcuts, consists of a glass tube, bent upon itself so as to have two parallel limbs, attached to an upright metal scale. One end of the tube is expanded to facilitate the pouring in of mercury; being in contact with the atmosphere, it is covered, after sufficient mercury has been poured in, with gauze to prevent the entrance of dust; the other end is bent at a right angle, and with it is connected, in an air-tight manner, a rubber tube through which the breathing is accomplished. The scale has a zero-line in the middle and 125 millimetres above and below for each side of the glass tube. In addition to two fastenings which keep the glass in front of the metal, there is a slit below, in which slides a rest for it, controlled by a screw behind; this facilitates getting the glass tube, after being about half filled with mercury, in the proper position upon the scale, viz., the level of the mercury in each limb of the tube being made to correspond with the zero-line. The breathing-tube leads, either with or without the intervention of the hard-rubber valve-tube (*a* in Fig. 1), to either nose or mouth-pieces (Fig. 2, and *c*, *d*, in Fig. 1) or a nose-and-mouth-mask (*b*, in Fig. 1), all of which will be more particularly described presently. The foot of the pneumatometer is of wood, and about two inches high; the upright metal piece about thirteen inches high and two inches wide; the glass tube nearly one-half inch thick. Both limbs of the glass tube should have exactly the same bore, so that the mercury in one rises exactly as much as it falls in the other, for, as the pressure upon the column of mercury is measured by the difference in level in the two, it would be necessary to note the number of millimetres both above and below zero, and add these together, if the two portions were of different bore, instead of simply noting one number and doubling this, as can be done if the bore is uniform. The valve-tube is about 6 inches long, and in the middle 1 inch thick, gradually getting thinner toward the ends, with a bore of nearly ½ inch. It is reversible, so as to answer for both inspiration and expiration. The single nose-piece is a hard-rubber nozzle, 2½ inches long, shaped so as to completely fill the nostril. Not more than two or three different nozzles are required for all the nostrils met with. The double nose-piece (Fig. 2) is a hard-rubber, hollow cylinder, 1½ inch in diameter and the same in length, connected at one end with two soft-rubber pipes, 3½ inches long, with ½ inch bore, each terminating in a nozzle of hard rubber, like that of the single nose-piece, and at the other end attachable, either directly to the breathing-tube of the pneumatometer, or, by means of a short piece of India-rubber tubing, to the valve-tube. As a rule, I use the valve-tube; when it is desirable to ascertain how long the patient can sustain a certain pressure at a certain point, I take it off. Whenever the nasal passages are free for respiratory purposes, I use the double nose-piece; sometimes, when breathing is impeded through one nostril, the single nose-piece for the other nostril. As mouth-piece, I use either my valve-tube or a tube just like it without a valve. The oro-nasal masks I employ are the same as Waldenburg's. They are hollow hemispheres of sheet-brass or tin, with an indentation for the nose, the free edge being covered with India-rubber to make it fit air-tightly to the face, and the dome pierced by a short tube, ¾ inch in diameter, which can be attached either to the valve-tube, or directly to the breathing-tube. Three or four different sizes of masks are required, varying in diameter from 2½ to 4½ inches.

The Mode of using the Instrument.—To carry out the method of pneumatometry is exceedingly simple; nevertheless, it must be thoroughly studied and practised before it can serve the purpose of diagnosis.

Upon breathing into the instrument, the pressure of the air upon the column of mercury with which it first comes into contact depresses the column, the mercury rises in the opposite limb of the glass tube, and the difference of level in the two limbs is the measure of the expiratory pressure exerted. This is the positive pressure. During inspiration, on the other hand, the mercury contained in the limb with which the breathing-tube is connected is sucked up, the column in the other limb falls correspondingly, and the difference in the levels of the mercury indicates the negative pressure of inspiration, which may be called the inspiratory traction. Thus, expiration yields us on the pneumatometer a positive, and inspiration a negative pressure.

In instructing the patient how to breathe, the very first question that must be met is, Shall he breathe through the nose, or mouth, or both? Hales seems to have used the mouth. Valentin employed three different methods, viz.: 1. He applied a funnel-shaped mouth-piece, adapted to the form of the lips, air-tightly to the outside of the open mouth, closed both nostrils, and had both inspiration and expiration performed several times without taking the mouth-piece off. But, as the air between the lips of the patient and the column of mercury became, under these circumstances, soon unfit to sustain respiration, only the first few breaths were of any value. 2. He allowed inspiration through the open nose with closed lips, and measured only the expiration through the mouth-piece as before. 3. He varied the second method by having the nostrils open during the expiration. Mendelsohn introduced a nose-tube tightly into one nostril, and closed the other nostril and the mouth. Hutchinson proceeded in the same way. Donders had also both inspiration and expiration performed through the nose. Waldenburg tested the same procedure, but dropped it entirely, except for the very rare cases in which he finds the patient intractable for other methods, or in which he wants to control the other methods by an additional one; he uses a mouth-piece, introduced very far into the mouth, if borne by the patient, to the very root of the tongue, beyond the *isthmus glosso-palatinus*, with the lips tightly closed around, or he uses, what he prefers, a mask covering air-tightly both nose and mouth, the patient breathing both in and out with his mouth widely open. Nearly all who have practised pneumatometry since, have followed Waldenburg in preferring the mask. After experimenting a good deal with the mask, and with my nose-tubes, I must confess that I think the latter more exact and unchanging in results, in all cases where freely applicable, i. e., where there is no obstruction to breathing by swelling, mucus, or otherwise, or where its use is not annoying to the patient. But Waldenburg's method of breathing through the mask yields good results, and I frequently employ it—and also the mouth-piece—in conjunction with the method of breathing through the nose-piece. In cases of catarrh or obstruction of the nose, I frequently, also, place Waldenburg's and my methods in juxtaposition, to determine the difference of the manifestation of respiratory power caused by the difficulty of breathing through the nose. Whenever the patient uses the nose-piece, he must keep the mouth shut.

Like Eichhorst (*op. cit.*), I have found that the sources of error which Waldenburg has very properly pointed out, can be avoided by attention and properly instructing the patient. These sources of error arise from the powers of suction and expulsion that can be exercised by the muscles of the mouth and throat; from inattention on the part of the patient to what he is doing, in breathing *out* during intended inspiration, and *in* during intended expiration; and from breathing irregularly and repeatedly in one effort.

The breathings should be deep, and with the exertion of all the power of which the individual is capable. Before breathing into the instrument, I let him fill his lungs well. After each expiration, I give him a moment's rest, during which he breathes naturally; he then takes a deep inspiration and makes another expiratory effort. The first few trials I hardly ever count. I show him just how to do it, and usually after the fourth or fifth experiment—in the case of an exceptionally unteachable patient, not until after the tenth or twelfth—he avoids all sources of error. I then try him (after a rest, if he is weak) five or six times more, and note down the maximum pressure attained in any one of these successful efforts. These last five or six experiments, as a rule, give the same or nearly the same result, which I have found unvarying, even at repeated rests at irregular intervals—a reasonably sure indication that it is pretty nearly correct. After finishing with the expiration, I proceed to measure the inspiratory power in a similar manner. Waldenburg found, however, that it is immaterial whether an ordinary or a deep expiration precedes the inspiration to be measured, and I have come to hold the same opinion.

In both phases of respiration, a difference can be made between a forcible effort and a slower, gradually increasing, but nevertheless as powerful, exertion. In the former, a greater pressure is attained for a moment, which sinks rapidly; but, in the latter, the column of mercury can be sustained at a certain height for one or more seconds. As I usually attach to the pneumatometer my valve-tube, which maintains the pressure achieved, I make use of the former mode, which upon the whole is certainly preferable; but occasionally I remove the valve-piece, and measure by the other mode as well. The latter, of course, gives smaller and more complicated results.

I must give a caution in regard to reading the scale. I have already mentioned that the bore of the two limbs of the tube containing the mercury should be uniform, in order that the pressure be correctly attainable by simply doubling the number of millimetres above or below the zero-line indicated in either limb. Every one can easily ascertain whether in this respect his pneumatometer is trustworthy, by determining whether the level of the mercury is at exactly the same figure in each limb. But the mercury, on account of its adhesion to the glass, has a convex surface in the tube, and care must be taken to note the tangential line. A mistake will certainly be made if the level of the observer's eyes be either too high or too low.

Immediately after a full meal, the respiratory power, especially the expiratory, is usually diminished, and the measurement is not reliable.

Pneumatometry in Health.—We have seen that Hales came to the conclusion that about 50 millimetres is the maximum attainable during inspiration "by the bare inspiring action of the diaphragm and dilating thorax;" and also during pure expiration, even with the "utmost strainings." He very properly excluded oral suction and expulsion as sources of error, but I suspect that his apparatus was not perfectly air-tight, and that therefore his figures are too low. Valentin obtained, in the cases of four different individuals, the following maxima: 1, deepest inspiration −130 millimetres, most forcible expiration +80 millimetres; 2, forced inspiration −232, forced expiration +256; 3, forced inspiration −220, forced expiration +256; 4, forced inspiration −58, forced expiration +224. In later publications, Valentin reports still higher figures, viz.: −232 to −266 millimetres for inspiration, +260 to 326 millimetres for expiration.[1] Waldenburg says, and I agree with him, that these figures are explicable only by assuming that instead of, or together with, inspiration, the aspiratory power of the mouth, and instead of, or together with, expiration, the power of expulsion of the mouth, entered into the measurement. Mendelsohn found, as the mean of experiments on seven persons —87 millimetres for forced inspiration, and +113 to 122 millimetres for forced expiration. In the different individuals the inspiratory power varied from 52 to 117 millimetres, the expiratory from 85 to 170 millimetres. The expiratory pressure always exceeded the inspiratory traction, say, by about one inch, or 26 millimetres. These figures, it will be seen further on, agree very well with my own. Hutchinson obtained figures also very accurate, although his average is smaller than mine. He constructed a table on his instrument, of which he says, "Certain words are marked on the plate, their position having been determined by 1,500 experiments." He gives his figures in inches, which I have calculated in millimetres, omitting fractions of a millimetre under $\frac{1}{2}$, and reckoning fractions over $\frac{1}{2}$ as a whole millimetre:

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[1] From the fourth edition of his "Grundriss der Physiologie," Braunschweig, 1855, as quoted by Waldenburg, "Die pneumatische Behandlung," etc., p. 2.

Inspiratory power ranging about:	Characterization.	Expiratory power ranging about:
38 millimetres.	"Weak."	51 millimetres.
51 "	"Ordinary."	63 "
63 "	"Strong."	89 "
89 "	"Very strong."	114 "
114 "	"Remarkable."	147 "
140 "	"Very remarkable."	178 "
151 "	"Extraordinary."	216 "
178 "	"Very extraordinary."	254 "

He adds, "It will be observed that the figures on each side of the same word differ in their value, the expiratory side ranging about $\frac{1}{3}$ higher, because the power manifested (I do *not* mean power exerted) by these muscular efforts varies in this relation." This is certainly very frequently true, but occasionally the relation between the expiratory and inspiratory powers varies within very wide limits even in health, although the former is always greater than the latter. As an average, Hutchinson obtained about —76 millimetres for inspiration, and about 100 millimetres for expiration, for men. He does not seem to have determined the respiratory power of women. A certain relation exists, according to Hutchinson, between the height and the respiratory power, and he gives the following as the mean correspondence during health:

Height	Up to 5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 feet.	Over 6 ft.
Inspiratory power in inches	2.55	2	2.52	2.31	2.70	2.84	2.70	3.07	2.96	2.91	2.83	2.77	2.65	2.67
Expiratory power in inches	3.28	3.36	3.23	3.15	4.32	4.33	3.87	4.18	4.13	4.28	3.94	3.63	4.48	4.41

According to this, at the height of 5 feet 7 inches and 5 feet 8 inches, the inspiratory power is greatest, and thence the strength gradually decreases as the stature increases. The men of 5 feet 7 and 8 inches elevate a column of about 3 inches of mercury = 76 millimetres: this Hutchinson calls a "healthy power." The men of 6 feet have the greatest expiratory power, viz., one of about 4½ inches = 114 millimetres. But Hutchinson says, "The expiratory power I do not consider such a test of strength, or, if I may be allowed the term, the *vis vitæ*, as the inspiratory." He refers here to the influence of vocation and habits upon the expiratory function. I have not been able to confirm this relation between the height of a person and his inspiratory and expiratory power. Donders published figures which are rather small; like Valentin, Mendelsohn, and Hutchinson, he found the expiratory power to exceed the inspiratory. He gives the negative pressure, for forced inspiration, as being from 36 to 74 millimetres, the positive pressure, for forced expiration, from 82 to 100 millimetres.

Waldenburg declares, as the result of his numerous observations, that the figures vary within wide limits: "Healthy adult men, who are not especially strong, reach on the average, by forced inspiration, a negative maximum pressure of 80 to 100 millimetres, by forced expiration, a positive maximum pressure of 100 to 130 millimetres. Very strong muscular men often considerably exceed these figures; they may attain by inspiration to from 120 to 160 millimetres, by expiration to from 150 to 220 millimetres. Weak persons, on the other hand, give lower rates; however, if they are healthy, we may regard for adult persons of the male sex 70 millimetres as the minimum negative, or inspiration, pressure, and 80 millimetres as the minimum positive, or expiration, pressure. Women can reach only considerably lower rates than men. With them, on an average, the negative pressure of forced inspiration amounts to from 60 to 80 millimetres, the positive pressure of forced expiration to from 70 to 110 millimetres. Higher figures are reached only by few. In the case of healthy women, about —50 millimetres may be regarded as the minimum for forced inspiration, +60 millimetres for forced expiration. Children of the age of about ten years and over usually show rates which correspond entirely, or nearly (with a difference of perhaps 10 to 20 millimetres), to the minimum of adults. Not a few children, indeed, reach the average of adults. I have, however, not a sufficiently large number of observations to be able to give exact figures for children of the various ages. The same is true of very advanced age. Here, I can state only this, that in the case of old men (sometimes, indeed, already at an age of beyond sixty years) the pneumatometrical figures fall to near the minimum, or even below this. All these numbers refer to the maxima obtained by forcible inspiration and expiration. The figures are much smaller for the more slow inspiration and expiration, gradually increasing in power, with which the person is able to maintain the pressure at the height for one or more seconds. With healthy adult men, the force of inspiratory traction observed in this manner varies from 50 millimetres to, at the most, 120 millimetres, the expiratory pressure from 60 to 150 millimetres; the mean values are, for inspiration, 60 to 90 millimetres, for expiration, 70 to 100 millimetres. With women, inspiratory traction reaches some 25 to 60 millimetres, expiratory pressure, 30 to 80 millimetres."[1] Waldenburg's figures closely, upon the whole, correspond to those which I have obtained by the examination of healthy persons; the extremes are within nearly the same limits, and I regard his results as very reliable. Eichhorst's figures (*op. cit.*) are smaller than Waldenburg's and mine, but he practised the mode of slow and gradual, though deep, rather than quick and forcible, respiration. His averages, obtained from twenty-four men, are 44 millimetres for inspiration, 60 millimetres for expiration; from eighteen women, 26 millimetres for inspiration, 36 millimetres for expiration. His lowest figures among men are, for inspiration, 17 millimetres (found in two cases, one a laborer fifty-one years old, with expiratory power of 35 millimetres, the other a merchant fifty-two years old, with expiratory power of 26 millimetres), for expiration, 26 millimetres (the case of the merchant just mentioned); among women, for inspiration, 11 millimetres (in a laborer's widow, fifty-three years old, whose expiratory power is given as 25 millimetres), for expiration, 25 millimetres (found in the case of this widow, and in that of a servant-girl of nineteen years, whose inspiratory power was 24 millimetres). His highest figures among men for inspiration are 86 millimetres (in the thirteen-years-old son of a shoemaker, whose expiration measured 91 millimetres), for expiration, 94 millimetres (in a student aged twenty-three years, whose inspiratory power was 82 millimetres); among women, for inspiration, 42 millimetres (in a girl of sixteen years, who worked in a factory, whose expiration measured 47 millimetres), for expiration, 55 millimetres (in a laboring woman, fifty-one years old, whose inspiration reached only 25 millimetres). Lassar,[2] who measured, not the maximum respiratory power of which the individual was capable, but took the average of a number of experiments, gives as the average of such averages, for breathing through the mouth, 50 millimetres for forced inspiration, and 60 millimetres for forced expiration; for breathing through one nostril, for forced inspiration, 41 millimetres, for forced expiration, 52 millimetres.

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[1] "Die pneumatische Behandlung," etc. (*op. cit.*), p. 27.

[2] "Zur Manometrie der Lungen. Inaugural-Abhandlung, der medicinischen Facultät zu Würzburg vorgelegt." Würzburg, 1872. Waldenburg, "Die pneumatische Behandlung," etc., p. 28.

The result of my own investigations of pneumatometry in over 100 healthy persons is, briefly stated, as follows: For the male sex, the average of the maximum inspiratory power is —86 millimetres, the average for the maximum expiratory power +110 millimeters; for the female sex, the average of the maximum of forced inspiration —50 millimetres, that of the maximum of forced expiration +70. The highest figures I have met with in strong, healthy men are 170 millimetres for inspiration, and 230 millimetres for expiration. This is very exceptional, however. The maxima I have observed in healthy women—found also only very rarely—are 90 millimetres for inspiration, and 120 for expiration. The minimum of respiratory power compatible with perfect health in women, I am forced to place much lower than Waldenburg has done; as to men I am disposed to agree to his minimum figures, although all the healthy adult males that I have examined showed greater power than he gives as the minimum met with. I have full records of twenty-five individuals of each sex, subjectively in perfect health, who have been carefully clinically examined, more especially as to the condition of the respiratory organs, but really also as to the condition of other organs, stating age, occupation, habits, build, weight, height, trunk measurements and lung capacity (vital ratio), physical signs on examination of chest, previous history and present state in other respects, and respiratory power as shown by the pneumatometer. These records show that an adult woman may enjoy perfect health and yet not be able to reach on the pneumatometer a higher figure than —20 millimetres as the maximum for forced inspiration, and +30 millimetres as that for forced expiration. The lowest figures yielded by any one of the twenty-five healthy males were those of a strong, florid-complexioned gentleman of fifty-three years, viz., —74 millimetres inspiration, and 86 millimetres expiration.

With healthy children under ten years I have had very little experience. A boy of eight years has registered —50 for inspiration, and 70 for expiration; and a little girl of seven, very strong, however, for her age, —36 for inspiration, and between 40 and 50 for expiration. These are the highest figures reached. Children over ten years usually exhibit almost the same latitude and nearly the same figures as adults. In old age the figures often become surprisingly small. As a rarity I must mention the case of a hale and hearty gentleman, seventy-five years of age, who registered —112 millimetres for inspiration, and 130 millimetres for expiration.

I will add Prof. Waldenburg's respiratory power as shown by the pneumatometer, reported by himself, and my own:

I. Waldenburg's vital lung capacity: 3,000 cubic centimetres.

A. Breathing through a mouth-piece.

1. Inspiration.

a. Quick, forced inspiration. The mercury rapidly rises in one limb of the glass tube to 70 millimetres above zero, but sinks at once and keeps playing about a much lower point. The maximum inspiratory power is, therefore, —140 millimetres.

b. Slower, but the deepest possible, inspiration. The negative pressure increases slowly until it reaches 100 millimetres, then falls to 80 millimetres, and for two seconds varies from 40 to 80 millimetres and from 50 to 70 millimetres. The average number is, therefore, 60 millimetres, and about this point, indeed, the mercury remains longest.

2. Expiration—after deep but not strained inspiration.

a. Quick, forced expiration. The maximum pressure attained for a moment amounts to 150 millimetres.

b. Slowly-increasing, powerful expiration. The pressure of 100 millimetres is reached, then the column of mercury falls and pendulates up and down, indicating for four seconds from 60 to 80 millimetres, and about half that time a few millimetres above or below 70 millimetres.

The measures of inspiration, as well as of expiration, are the same whether the nose is closed or not.

B. Breathing through a nose-piece [through one nostril].

1. Inspiration.

a. Quick, forced inspiration. For a moment a negative maximum pressure of 140 millimetres is attained with immediate falling of the mercury.

b. Slow, very deep inspiration. After reaching 100 millimetres, falling and pendulating of the mercury for three seconds at from 40 to 80 millimetres. Average 60 millimetres.

The figures are the same, whether the second nostril remains open or is closed with the finger. The nostril closes involuntarily of itself during the inspiration.

2. Expiration—after deep but not strained inspiration.

a. Quick, forced expiration. Maximum reached for a moment 170 millimetres.

b. Slow, profound expiration. The pressure rises to 100 millimetres, varies for two seconds between 100 and 70 millimetres, and then remains for two seconds longer at 70 millimetres.

Throughout this experiment the second nostril was closed with the fingers. In other experiments, during which it had been left open, the numbers obtained were very much smaller and indeed useless, on account of the unimpeded egress of air through it. The maximum of expiratory power with open nostril amounted to only 110 millimetres.

C. Breathing through the mask.

1. Inspiration.

a. Forced, quick inspiration. Maximum, for a moment, —130 millimetres. Rapid fall.

b. Slower, deep inspiration. The negative pressure increases slowly to about 100 millimetres, then trembling movements of the mercury indicate from 50 to 70 millimetres for one and a half second. Mean: —60 millimetres.

2. Expiration after deep but not strained inspiration.

a. Quick, forced expiration. For a moment 140 millimetres pressure is reached; mercury falls quickly.

b. Slower, strong expiration. Hovering of the mercury, for one and a half second, between 60 and 80 millimetres. Mean: 70 millimetres.

II. As to myself (data of over a year ago), age thirty-eight years; strong and muscular; weight, without clothes, 157 lbs.; height (five feet seven and three-quarters inches), 172 centimetres; height of trunk, measured from seventh cervical vertebra to end of coccyx, 66 centimetres; periphery, measured about 3 centimetres below nipple, 81 centimetres; vital lung capacity, 4,300 cubic centimetres (vital ratio, i. e., the relation of the "vital lung capacity" to the cubic contents of the trunk, 8.02); lungs healthy.

A. Breathing through a mouth-piece.

1. Inspiration.

a. Quick, forced inspiration. Maximum negative pressure 110 millimetres, with rapid sinking of the mercury.

b. Slow, deep inspiration. Mercury sustained for three and a half seconds between 40 and 60 millimetres negative pressure. Mean: —50 millimetres.

2. Expiration after deep but not strained inspiration.

a. Quick, forced expiration. Maximum, reached but for a moment, 130 millimetres.

b. Slow, unexcited, but powerful expiration. The mercury kept for over three seconds between 60 and 80 millimetres, longest about the mean of these figures, viz.: 70 millimetres.

No difference is observed in these results whether the nose is held shut or not.

B. Breathing through my double nose-piece. (For convenience of experimenting, breathing out was accomplished through the mouth when testing the inspiration, and breathing in when testing the expiration, which, it was found, did not disturb the mercury.)

1. Inspiration.

a. Quick, forced inspiration. Maximum —130 millimetres, reached with quick descent and oscillation of the mercury.

b. Slow and deep inspiration. A pressure of —120 millimetres is registered for a moment, and one of from —80 to —40 millimetres kept up for several seconds; most of the time about 60 millimetres.

2. Expiration after deep but not strained inspiration.

a. Quick, forced expiration. Maximum obtained, 150 millimetres.

b. Slow and powerful expiration. A pressure of 100 millimetres for an instant, one of 90 for a little longer, and a varying one from 50 to 80 millimetres for two and a half seconds is reached.

C. Breathing through the mask.

1. Inspiration.

a. Quick, forced inspiration. Maximum —130 millimetres.

b. Slow and deep inspiration. After the negative pressure of 120 millimetres has been just touched, it plays about —60 millimetres as a central point for nearly two seconds, varying from 10 to 15 millimetres above and below.

2. Expiration after deep but not strained inspiration as before.

a. Quick, forced expiration. Momentary maximum pressure, 150 millimetres.

b. Slow, strong expiration. The mercury, slowly descending, marks for more than two seconds a pressure varying from 60 to 80 millimetres.

Pneumatometry in Disease.—We have seen that in the normal condition the positive or expiration pressure is greater than the negative or inspiration pressure. We have also seen that, although the latitude of variation within the limits of health is a very great one, we still recognize for each sex a certain normal average and requisite minimum of inspiratory and expiratory power. Upon these considerations Waldenburg based his division and classification of the pathological breathing revealed by the pneumatometer. He made two groups, each of which he subdivided into three classes, viz.:

Group I.—Characterized by the inversion of the normal relation between expiratory and inspiratory pressure; the positive pressure is smaller than the negative—there is an insufficiency of expiration.

Class 1.—With the insufficiency of expiration, the inspiratory pressure is normal.

Class 2.—With the insufficiency of expiration, the inspiratory pressure does not reach the normal minimum; inspiration is therefore also insufficient; nevertheless, the expiratory pressure is still less than the inspiratory.

Class 3.—With the insufficiency of expiration, the inspiratory pressure is larger than normal.

Group II.—Characterized by insufficiency of inspiration, the normal relation between expiratory and inspiratory pressure being preserved; the negative pressure is smaller than the positive.

Class 4.—With the insufficiency of inspiration, the expiratory pressure is normal.

Class 5.—With the insufficiency of inspiration, the expiratory pressure, although larger than the inspiratory, does not reach the normal minimum; expiration is therefore also insufficient.

Class 6.—With the insufficiency of inspiration, the expiratory pressure is larger than normal. Waldenburg has added this class for the sake of completeness, admitting that he has never seen a case in point. It is difficult to conceive of a disease bringing about such a condition unless, perhaps, where, with normal inspiration, the expiratory power has become preternaturally strong through habits, vocation (that of "glass-blower, trumpeter, wrestler"), and the like, and disease should then interfere with inspiratory power and leave the expiratory at first still greatly in excess; thus Hutchinson reports the case of a wrestler in whom he found "the expiratory power exceed nearly four times that of the natural inspiratory power, which vast preponderance was purely the effect of his favorite amusement."

As Waldenburg has shown, the inspiratory traction as well as the expiratory pressure is a product of various factors, some of a positive, some of a negative character. These factors are: 1. *The muscular power.* 2. *The elasticity of the lungs.* 3. *The obstacles presented by the walls of the chest, its contents and their surroundings.*

"In *inspiration*, the set of muscles brought into action for forcibly breathing air into the lungs forms the only positive factor. The muscular force has, on the one hand, to work against the elasticity of the lung-tissue which opposes expansion; on the other hand, it has to overcome the obstacles to change in the form of the thorax. These obstacles are principally the force of gravity of the thoracic wall which has to be overcome in raising the ribs; the change of form and position to which the thorax and its contents—lungs, heart, vessels, and pleura—are exposed by expansion of the chest; the elasticity of the walls of the thorax; the difference of pressure between the outer atmosphere and the somewhat rarefied air within the lungs; and, finally, the abdominal tension resisting the lowering of the diaphragm.

"The case is different in *expiration.* Of course, the muscles coming into action for forcibly breathing air out form the main factor of the pressure produced. But the obstacles to inspiration are also active in favor of expiration. The pulmonary elasticity is an aid to expiration, increasing its power. Gravity also, and the other obstacles, directly aid expiration, as the parts disturbed tend of themselves to return to their former position. Only in very forced expiration—when the thorax is compressed beyond its former or balanced condition—new obstacles arise, expiratory obstacles in contradistinction to inspiratory obstacles, while the elasticity of the lungs still continues to act in favor. *Thus, in inspiration, the muscular power forms the positive, the elasticity of the lungs and the obstacles the negative, factors; while in expiration all these three factors are positive ones, with only a relatively small negative one from expiratory obstacles.*"[1]

Waldenburg has laid down the following general propositions:

1. By muscular atrophy or diminution of muscular strength, the pneumatometrical figures are reduced, the inspiratory and expiratory about equally if the disease of the muscles be general; but the former or the latter alone, or one more than the other, if the disease affect only single groups of muscles, especially subservient more to either inspiration or expiration. *Cœteris paribus*, an increase of muscular power increases in like manner the figures registered on the pneumatometer.

2. A diminution of the elasticity of the lungs reduces the pressure of expiration and tends to increase the negative pressure of inspiration.

3. An increase of inspiratory obstacles reduces the power of inspiration and increases that of expiration, in case expiratory obstacles are not present at the same time. But, on the other hand, there may appear expiratory obstacles, while the inspiratory obstacles are not at all or only slightly in-

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[1] "Die pneumatische Behandlung," etc., pp. 53, 54.

creased. In such cases the expiratory power alone, or mainly, will be reduced.

Hutchinson says, "As it is a common rule that inflammation and disease in general are attended with pain on pressure, these also may be perceived by the diminished power manifested on the instrument which measures the pressure exerted." He then gives a table showing the difference between the inspiratory power of the healthy and that of the diseased, and adds, "This difference is about one-half, as might be anticipated, because weakness is the most prominent symptom of disease."[1]

Among the individual diseases, in obscure or incipient cases of which pneumatometry has furnished most important aid in diagnosis, pulmonary emphysema and phthisis must first be named; but it has already been called into requisition not only in other diseases of the respiratory organs, but also in diseases of the circulatory and other organs.

I. Diseases of the Respiratory Organs. 1. *Pulmonary Emphysema.*—Donders already has pointed out that vesicular emphysema must be accompanied with diminution of pulmonary elasticity. Waldenburg has discovered and demonstrated that pneumatometry is a means with which we can detect emphysema in its incipient stage, while yet all other methods of examination fail; this, too, even when no actual subjective disturbances exist at the time; and, moreover, pneumatometry enables us to distinguish with probability between the various forms or stages of emphysema. In all cases there is dilatation of the terminating vesicles of the lungs, and "either an abnormal accumulation of air within the air-cells, or an infiltration of air into the sub-pleural and interstitial connective tissue."[2] The various forms or rather stages come all under the head of Waldenburg's first group of pathological breathing, viz., that characterized by the inversion of the normal relation between expiratory and inspiratory pressure; the positive pressure is smaller than the negative, there is insufficiency of expiration. The incipient stage or slightest degree of the disease belongs to the first class, i. e., with little or much insufficiency of expiration, the inspiratory pressure is normal; the most severe form belongs to the second class, when, together with the insufficiency of expiration, the inspiratory pressure, also, does not reach the normal minimum, i. e., when inspiration is also insufficient, though nevertheless the expiratory pressure is still less than the inspiratory; while the cases belonging to the third class, where with the insufficiency of expiration the inspiratory pressure is larger than normal (which, however, is more difficult, if not impossible, to determine, unless the patient's inspiratory power has been examined during health and known for comparison), constitute the compensatory form, and may be ranged as to severity between those of the first and second classes.

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[1] *Op. cit.*, pp. 225, 226.

[2] "Lectures on Diseases of the Respiratory Organs, Heart, and Kidneys." By Alfred L. Loomis, M. D., Professor of Pathology and Practical Medicine in the Medical Department of the University of the City of New York, etc., etc. New York: William Wood & Co., 1875, p. 79.

I could append a large number of cases both from my own experience and those reported by others, but I will only mention, exceedingly briefly, a few illustrative cases:

L. P., aged forty years; merchant; complains of dyspnœa on any unusual exertion. This has probably occurred for years, but increased so gradually that he hardly noticed it until the last two or three months. No cough, no expectoration. Inspection, percussion, and auscultation, reveal nothing abnormal. Health otherwise excellent. Pneumatometer showed inspiration —120 millimetres, expiration 92 millimetres.

H. S., aged thirty-five years; broker. Has had a cough off and on for over five years; is out of breath very easily on walking fast, going up-stairs, etc. Lungs extend lower down than normally, and heart, partly covered, is pushed downward and toward middle line. Respiratory murmur enfeebled, expiration-sound prolonged, some "rustling." Inspiratory power —130 millimetres, expiratory 70 millimetres.

W. H., aged fifty-two years. Has greatly suffered from shortness of breath on exertion ever since he can remember, much worse during the last year. Dilatation of the chest very marked, "barrel-shaped;" percussion-sound abnormally clear, "vesiculo-tympanitic;" auscultation-sound almost suppressed, sibilant in many places. Inspiration —40 millimetres, expiration 30 millimetres.

Mrs. R., aged thirty-eight years. Previously remarkably healthy; has suffered from dyspnœa on exertion for three years. Has had to give up singing. Now suffers from great oppression each time she walks a few steps. Heart covered, liver pushed down; harsh vesicular breathing. Inspiration —20 millimetres, expiration 16 millimetres.

2. *Asthma.*—Emphysematous persons are so liable to attacks of asthma, and asthma, when it comes itself from other causes, is so apt, perhaps so certain, sooner or later to produce emphysema, that the results of pneumatometry in asthmatic patients may frequently be ascribed to the coexistence of emphysema. But, independently of the latter, there exists during the paroxysm an expiratory insufficiency which the pneumatometer registers for some time thereafter, as in a case of seemingly uncomplicated spasmodic asthma in a man, twenty-eight years old, whose inspiration measured during the interval —50 millimetres, expiration 34 millimetres.

3. *Bronchitis.*—We can say of bronchitis—at all events, of chronic or frequently-recurring bronchitis—that it is very frequently associated with pulmonary emphysema, and that it must, then, exhibit the pneumatometrical measures peculiar to the latter; but in many cases where this is to be excluded, as, for instance, in some cases of acute bronchitis, both primary and secondary, we also find insufficiency of the expiration. Waldenburg explains this by assuming that by narrowing of the smallest bronchioles on the one hand and pulmonary hyperæmia on the other, the expiratory pressure is in such cases interfered with, while the inspiratory remains unaffected. At all events, he and Eichhorst report cases in point, and I will add the following: J. B., a middling-strong man, in somewhat impaired health, however, for some time, took a very severe cold, with the symptoms of acute bronchitis. Auscultation revealed rather feeble respiratory murmur and sibilant *râles.* He has a frequent, hacking cough, which gives him a sense of rawness in the upper portion of the chest. Inspiratory power —86 millimetres, expiratory 60 millimetres.

4. *Pulmonary Phthisis.* — Hutchinson, who has made

many hundred pneumatometrical observations on persons suffering from disease, has left us the following record of what he found in some cases of consumption:

Case I.—Incipient phthisis. Age, thirty years; weight, ten stone three pounds; height, five feet eight inches; pulse while sitting, 100; number of respirations per minute while sitting, 28; circumference of chest, 36 inches; mobility of chest, 1½ inch; vital capacity, 186 cubic inches; power of inspiration 0.70, of expiration 0.80 inch = inspiratory power —18 millimetres, expiratory 20 millimetres.

Case II.—Phthisis. Age, sixty years; weight, ten stone; height, five feet eleven inches; pulse while sitting, 60; respirations per minute, sitting, 40; circumference of chest, 35¼ inches; mobility, 1½ inch; vital capacity, 108 cubic inches; power of inspiration 0.75, power of expiration 0.46 inch = inspiratory power 19 millimetres, expiratory 12 millimetres.

Case III.—Phthisis. Age, thirty-six; weight, ten stone; height, five feet nine inches; pulse sitting, 100; respirations per minute, sitting, 40; circumference of chest, thirty-five inches; mobility, one inch; vital capacity, 80 cubic inches; power of inspiration 1.50, of expiration 2 inches = inspiratory power —38 millimetres, expiratory 50 millimetres.

Case IV.—Phthisis. This is the case of Freeman the "American Giant," and in it the pneumatometer as well as the spirometer *indicated* "the commencement of the disease which ultimately caused his death, and that *before* the usual means availed." I shall quote the full details which Hutchinson relates, viz.: "This man came over to England in 1842, and in the November of that year trained for a prize-fight; I examined him immediately before his *professional engagement*, when he might be considered in the 'best condition.' His powers were as follows: vital capacity four hundred and thirty-four cubic inches; height 6 feet 11¼ inches; weight nineteen stone and five pounds; circumference of his chest forty-seven inches; inspiratory power 5.0 inches; expiratory power 6.5 inches. In November, 1844, exactly two years afterward, he came to town in ill-health. I then examined him in the same way as before, twenty times at various intervals, during which his vital capacity varied from 390 down to 340, and the mean of all the observations was 344 cubic inches, a decrease of ninety, or more than twenty per cent., his respiratory power had decreased one-fifth, and his weight two stone. At this time I took him to two physicians well skilled in auscultation, and they both affirmed that they could *not detect* any organic disease. After January, 1845, I lost sight of Freeman, and in the October following I was kindly favored with the following account of him from Mr. Paul, surgeon to the County Hospital, Winchester: 'Freeman was admitted into this hospital on the 8th of October, in an extreme state of debility and exhaustion; he was reduced almost to a skeleton, complained of cough, and was expectorating pus in large quantities. Percussion on the anterior part of the chest, *under the clavicles*, gave on the right side a very dull sound; on the left one much clearer, but still, I think, less resonant than natural; I made but one attempt at auscultation, but could come to no conclusion, from a rather singular reason: the ribs were so large, the intercostal spaces so wide and so sunk in from the extreme state of emaciation to which Freeman was reduced, that I could not find a level space large enough to receive the end of the stethoscope; could not, in short, bring its whole surface into contact with the chest. Freeman's great debility and the clearness of diagnosis from other sources prevented my repeating the attempt. Freeman, after death, measured 6 feet 7½ inches and weighed ten stone and one pound. On opening the chest, the lungs on both sides were found adhering by their apices to the superior boundaries of the thorax, and studded throughout their substance with tubercles. The tubercles, on the whole, were much less numerous in the right lung than in the left; both lungs were nearly healthy at their base; the tubercular matter gradually increased in quantity toward their upper part, and the apices of both lungs were almost completely occupied by large cavities, partly filled with pus, and capable of containing two or three ounces of fluid each. The heart was remarkably small. The rest of the viscera appeared healthy.' "[1] In this case, the inspiratory power, from having been 127 millimetres during health, had become reduced to about 100 millimetres at a time when percussion and auscultation did not yet reveal any change.

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[1] *Op. cit.*, p. 219.

In his first publication on the subject, already, Waldenburg stated that in phthisis the inspiratory pressure becomes at once diminished, while the expiratory, usually, for some time nearly normal, is more slowly lessened and remains larger than the inspiratory. The breathing of phthisical patients belongs, therefore, to the second group, viz.: that characterized by insufficiency of inspiration, the relation between expiratory and inspiratory pressure being normal, the negative smaller than the positive. This is so entirely different from what the pneumatometer shows in bronchitis and emphysema that it is of great value for differential diagnosis in doubtful cases, especially of incipient phthisis. As the disease advances and involves more and more of the lung-tissue, the negative pressure becomes smaller and smaller, in extreme cases sinking to most insignificant values. At the same time the positive pressure diminishes, preserving its relation; but, though continuing to preponderate, it, too, becomes very greatly reduced; in severe cases to 10 millimetres, and even below this figure. Waldenburg and Eichhorst have reported numerous cases. I have a large number in my books, from which I will transcribe the following, omitting all details:

S. D., aged thirty years. Phthisis, first stage, right apex posteriorly. Inspiration —60, expiration 100 millimetres.

Miss F., aged twenty-three years. Phthisis, first stage, both apices (hæmoptysis several years ago). Inspiration —18, expiration 36 millimetres.

E. B., aged forty-two years. Phthisis, evidences of softening. Inspiration —30 millimetres, expiration 50 millimetres.

Mrs. D., aged twenty-seven years. Phthisis. Softening; hæmorrhages. Inspiration —14 millimetres, expiration, 20 millimetres.

J. L. S., aged thirty-five years. Advanced phthisis. Inspiration —10, expiration 20, which changed to 16 in less than two weeks.

Mrs. W., aged thirty-eight years. Advanced phthisis. Inspiration —8 millimetres, expiration 12 millimetres.

5. *Pneumonia.*—In pneumonia the inspiratory pressure is reduced, and when the inflammation is extensive the expiratory also, but the latter remains always greater than the former. I have had no opportunity myself to test the respiratory power in pneumonia, and therefore cite the following three cases published by Eichhorst:[1]

Case I.—Laboring-woman, aged fifty-nine years. Croupous pleuro-pneumonia of the left inferior lobe. Inspiratory power —25 millimetres; expiratory 36 millimetres. On the day before the crisis, inspiratory power —31 millimetres; expiratory 32 millimetres. Eleven days after the crisis, inspiratory power —40 millimetres; expiratory 44 millimetres. Fifteen days after the crisis, inspiratory power —60 millimetres; expiratory, 63 millimetres.

Case II.—Laborer, aged forty-three years. Croupous pleuro-pneumonia of the left lower lobe. Inspiratory power —23 millimetres; expiratory power 37 millimetres. Six days after the crisis, inspiratory power —50 millimetres; expiratory power 54 millimetres.

Case III.—Laborer, aged twenty-seven years. Croupous pleuro-pneumonia of the left lower lobe. Inspiratory power —22 millimetres; expiratory power 24 millimetres. In the further course of the disease, inspiratory power —13 millimetres; expiratory power 14 millimetres. Day of the crisis, inspiratory power —36 millimetres; expiratory power 38 millimetres. Three days after the crisis, inspiratory power —43 millimetres; expiratory power 46 millimetres.

6. *Pleurisy.*—Here, similar pneumatometrical conditions obtain as in pneumonia and pulmonary phthisis. Aside from the pain which tends to prevent deep inspiration, and therefore may reduce to a minimum the inspiratory pressure and correspondingly also the expiratory, it is obvious that compressed or inflamed consolidated tissue, or effusion, or pleural adhesion, must considerably interfere with inspiration, even when there is no pain. In all cases of pleurisy the pneumatometer registers insufficiency of inspiration: in mild cases the expiration may appear nearly normal; in severe cases there is insufficiency of both expiration and inspiration, the positive

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[1] *Op. cit.*, p. 278.

pressure of the former almost always exceeding, however, the negative pressure of the latter. As an example, I may mention, from my own observation, the case of M. R., aged thirty-nine years. Has had pleurisy repeatedly in his life, "caught a bad cold a few days ago;" dullness over middle and lower portions of left lung, with feeble respiratory murmur and friction-sounds. Inspiration —26 millimetres, expiration 34 millimetres.

Eichhorst reports, in the case of a laborer forty years old, with pleurisy of the lower portion of the right side, exactly the same figures, while he found three weeks later the inspiratory power to be —44 millimetres, the expiratory 50 millimetres.

Eichhorst also reports an interesting case of empyema in a boy fifteen years old, in which, after being twice punctured, the pleural cavity was opened with free incision, and cleansed daily by injection. Three months after the incision, inspiration measured —24 millimetres, expiration 29 millimetres. In the course of recovery these figures increased, and in six weeks became about normal, thus—

April 12, 1872.—Inspiration —24 millimetres, expiration 29 millimetres.

17*th.*—Inspiration —35 millimetres, expiration 45 millimetres.

20*th.*—Inspiration —37 millimetres, expiration 43 millimetres.

25*th.*—Inspiration —42 millimetres, expiration 78 millimetres.

May 22*d.*—Inspiration —60 millimetres, expiration 84 millimetres.

7. *Narrowing of the Upper Air-Passages.*—The largest number of pneumatometrical observations which I have made concern cases of laryngeal, tracheal, and pharyngo-nasal disease. I shall not here specify the individual affections, but will merely remark that whenever swelling of the mucous membrane, neoplasm, obstructive accumulation of phlegm, presence of foreign body, paralysis of the vocal bands, or constriction or compression from the outside, interferes with the normal admission of air, the pneumatometer immediately in

dicates the inspiratory insufficiency: the expiratory pressure may be normal, or even increased, or else diminished, according to the circumstances of the case. I shall relate no cases in this connection, for I would hardly know where to begin and still less where to stop.—In pharyngo-nasal catarrh, the difference of the pneumatometrical figures obtained by breathing through my nose-piece and the mask (breathing through the open mouth) is a significant measure of the insufficiency of per-nasal inspiratory power.

II. **Diseases of the Circulatory Organs.**—In fatty degeneration of the heart both inspiration and expiration are considerably reduced; in hypertrophy and dilatation, especially inspiration is. In mitral disease and stenosis of the left auriculo-ventricular orifice, there is mainly insufficiency of expiration, while in disease of the aortic valves there is insufficiency of both expiration and inspiration, but particularly of the latter, as in the following case: R. C., aged forty-two years. Aortic obstruction and regurgitation; commencing mitral regurgitation; hypertrophy of the left ventricle. Inspiration —60 millimetres, expiration 80 millimetres.

III. **Abdominal Affections.**—All painful processes in the abdomen interfere with the power of respiration, especially that of expiration. Pregnancy, abdominal tumors, exudations, and adhesions, cause expiratory insufficiency; even if the inspiration be also reduced, it nevertheless in these cases usually exceeds, instead of being less than, the expiration.

1. Of *pregnancy*, Eichhorst has reported fourteen cases [1] of which I will cite the following three. All these women were, of course, free from disease of the chest:

Case I.—Servant-girl, twenty-eight years old, primipara, in the last month of pregnancy. Inspiration —65 millimetres, expiration 48 millimetres.

Case II.—Laboring-woman, thirty-nine years old, eight children previously, six months pregnant. Inspiration —61 millimetres, expiration 21 millimetres.

Case III.—Laboring-woman, twenty-six years old, one child previously, seven months pregnant. Inspiration —36 millimetres, expiration 11 millimetres.

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[1] *Op. cit.*, p. 279.

2. Of *tumor*, I will cite two cases from Eichhorst, and a third from Waldenburg.[1]

Case I.—Widow, sixty-eight years old; very painful cancer of the liver occupying the greater part of the right side of the abdomen. Inspiration —26 millimetres, expiration 18 millimetres.

Case II.—Shoemaker, thirty years old. Cirrhosis of the liver in the first stage, with enlarged spleen. Intense icterus, at present no ascites. Inspiration —72 millimetres, expiration 40 millimetres.

Case III.—Pl., machinist, fifty-seven years old. Carcinoma of the liver, principally left lobe. Inspiration —120 millimetres, expiration 52 millimetres.

3. Of *exudation*, the following two cases are reported by Eichhorst:

Case I.—Laboring-woman, thirty-three years old. Painful peritonitic exudation in the left superior inguinal region, of traumatic origin. Inspiration —46 millimetres, expiration 17 millimetres. Thirteen days later, inspiration —23 millimetres, expiration 17 millimetres.

Case II.—Servant-girl, eighteen years old. Very painful extensive parametritic exudation.

April 28, 1872.—Inspiration —46 millimetres, expiration 17 millimetres.

May 5, 1872.—Inspiration —47 millimetres, expiration 20 millimetres.

23*d.*—Inspiration —29 millimetres, expiration 17 millimetres.

27*th.*—Inspiration —47 millimetres, expiration 34 millimetres.

4. Hutchinson claims that he has "frequently detected *hernia*" by his instrument for measuring the respiratory power. The case in point which he mentions is as follows:

Age, forty years; weight, ten stone four pounds; height, five feet six inches; pulse, while sitting, 86; number of respirations per minute, sitting, 16; circumference of chest, 34½ inches; mobility, 3 inches; vital capacity, 222 cubic inches;

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[1] "Die pneumatische Behandlung," etc., *op. cit.*, p. 78.

power of inspiration, 0.50 in. = about 13 millimetres; power of expiration, 1.00 in. = 25 millimetres.[1]

IV. **Muscular Atrophy and Paralysis.**—"Atrophy of all the muscles of the body, of course, reduces the power of both inspiration and expiration. Atrophy limited to certain groups of muscles will influence that phase of respiration in which the atrophied muscles act. In progressive muscular atrophy, the inspiration will be principally affected, as usually the atrophy mainly concerns the muscles of the chest. If the atrophy extends to muscles concerned in expiration, this too will be influenced, till at length respiratory insufficiency becomes so great that life can no longer be sustained.

"An effect similar to that caused by atrophy of the muscles must be produced by paralysis within the range of the respiratory muscles. I had an opportunity to observe, and examine with the pneumatometer, a striking case of *bulbar paralysis* (*glosso-palato-labial paralysis*) *complicated with progressive atrophy of the muscles of the trunk and upper extremities.* Miss L., twenty-two years old, has had for about a year a gradually-increasing nasal speech, afterward growing more and more peculiar and unintelligible. The patient cannot entirely close the lips so as to whistle, blow out a light, etc. Expectoration also difficult. When she swallows, the food returns through the nose. Respiration becomes increasingly difficult; the trunk and upper extremities very weak; the patient cannot hold up the head. The velum-palati is completely paralyzed (the vocal bands act normally); the tongue is atrophied, trembles continually and does not obey the will; the cavity of the mouth and pharynx is covered with viscous saliva, the mucous membrane reddened. Pectoral muscles very much wasted, the left more than the right; fibrillar spasms. The trapezius and muscles of the trunk also emaciated, on the right side more than on the left. Both arms partially atrophied. The lower extremities appear normal." (Death ensued about six weeks later from insufficient respiration.) "Maximum power of inspiration —20 millimetres, of expiration 20 millimetres.

"When I made the patient perform suction through the mouth-piece of the pneumatometer, instead of inspiration, she could with difficulty raise the mercury to 60 millimetres. But it must be stated that she could not close her lips so tightly around the mouth-piece as to exclude the air."[1]

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[1] *Op. cit.*, p. 245.

V. **Rupture of the Membrana Tympani.**—As a *Curiosum* I will mention that Hutchinson has recorded the following case of rupture of the tympanic membrane: Age, twenty-nine years; weight, ten stone one pound; height, five feet seven inches; pulse, sitting, 64; number of respirations per minute, sitting, 21; circumference of chest, thirty-four inches; mobility, three and a quarter inches; vital capacity, two hundred and sixty cubic inches; power of inspiration, 0.50 in. = 13 millimetres; power of expiration, 1.30 in. = 33 millimetres. When this man *closed* his ears, his respiratory power was manifested as nearly three times as strong.[2]

VI. **Phosphorus-Poisoning and some other Morbid Conditions.**—With a view of learning what influence different diseases might have upon the elasticity of the lungs, Perls[3] experimented upon one hundred dead bodies by bringing the trachea into air-tight connection with a manometer, and measuring the pressure the lungs exerted by their contraction on opening the thorax. From similar experiments previously made by Donders, as well as his own, Perls estimated the elasticity of healthy lungs after expiration, i. e., from the cadaveric position of the thorax to complete collapse, to be the same as what Donders had concluded, viz., about 80 millimetres. In the body of a person who had died from diphtheritic cystitis, he found the pulmonary elasticity, tested in this way, very much reduced, although there was no disease of the lungs or pleura. He found the same thing in other cases with healthy lungs and pleura; thus, in a person dead from poisoning by phosphorus, the elastic pressure amounted to only 11 mm.; of five cases of ileo-typhus, it was in one as low as 5 mm., in two 12 mm., in one 25 mm., and in the other 36 mm. It would be very interesting if the investigations which these experiments suggest, would be followed up in living patients by means of the pneumatometer.

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[1] Waldenburg, "Die pneumatische Behandlung," etc., *op. cit.*, p. 79.

[2] *Op. cit.*, p. 245.

[3] "Ueber die Druckverhältnisse im Thorax bei verschiedenen Krankheiten," "Deutsches Archiv für klinische Medicin," Bd. vi., 1869, p. 1.

Conclusion.—"With pneumatometry, the case is the same as it is with the other methods of examination, especially percussion and auscultation; it does not directly point out the presence of a particular disease, but it reveals certain abnormal conditions which may be caused by various, accurately recognizable diseases, between which differential diagnosis has to decide."[1] By means of the pneumatometer, dyspnœa, difficulty of breathing, which could hitherto be denoted by indefinite expressions only, can be characterized with exactitude both qualitatively and quantitatively—the first by showing whether it is inspiratory or expiratory, or both combined, the latter by determining in figures its precise extent or degree. And not only can the difficulty of breathing be determined when it exists subjectively as well as objectively, but in the first beginnings of a respiratory insufficiency, before the patient himself is conscious of it, except perhaps upon very unusual exertion, before we can discover its existence by any other method of examination hitherto known, the pneumatometer may indicate a deviation from healthy respiration. Again, in obscure cases of differential diagnosis, the weight of the evidence supplied by the pneumatometer may turn the scale in the right direction, when this might not be discernible without its revelation. The importance and value of pneumatometry can, therefore, not be doubted, and, without allowing it to take the place of other means of diagnosis, to it should unhesitatingly be awarded a prominent place alongside of the recognized and not-to-be-omitted methods of physical examination.

ART. III.—*Strapping the Breasts to prevent and arrest Lactation.* By W. W. MUNSON, M. D., Otisco, N. Y.

As strapping the breasts to prevent lactation seems to be considered a matter of some importance by Dr. Peaslee, as stated in his remarks before the New York Academy of Medicine, presenting Surgeon Wilson's "suggestion," reported in the New York Medical Journal, August, 1875, I would say that I have used this means ever since I have been in practice —four years—in a large number of cases, not only to *prevent* lactation, but to *arrest* it after the flow has commenced, where it has been desirable to dry up the milk, after death of the child, or for ulcerated, retracted, or imperfectly-developed nipples.

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[1] Waldenburg, "Die pneumatische Behandlung," etc., p. 63.

A failure has not occurred in a single instance, even in those very large breasts where an abundant flow of milk had been going on for several weeks.

Within the last month I applied the plaster to the breasts of a young woman whose babe was three weeks old. The nipples were retracted and could not be so drawn out by the usual means that the child could nurse with any degree of comfort. On account of the pain and trouble of nursing, she refused to torment herself and babe by any further attempts. Straps removed on the fifth day. Secretion completely arrested, without pain or inconvenience of any kind.

I have no faith in ointments, liniments, salves, washes of belladonna or any thing else, applied externally to the breasts to dry up the milk. There is no sense or science in putting any thing on the skin of the breast with the expectation of affecting the secretion in the gland underneath, one way or the other.

I give the following as representative cases:

I.—Mrs. F., 1871. Nipples became fissured and ulcerated, as had been the case with her before. They could not be healed while nursing. I applied the strapping to both breasts over a thick layer of cotton-wadding, with the idea that the elasticity of the cotton under the plaster would increase the pressure; but I soon found that there is no elasticity in cotton. Have never used it since. In this case the milk oozed from the nipples for a day or two, saturating the cotton and making a poultice of it. This is another reason for not using it. The case did well, although the strapping had to be removed from one breast, and renewed after emptying the gland, on account of pain.

II.—Mrs. R. I will give my notes of this case just as I find them written in 1873:

"*August 8th.*—Delivered of her eleventh child on the 5th inst. Nipple of left breast destroyed by ulceration while nursing first two children. No milk has been got out of it for several years; but it has always filled, 'caked,' and inflamed. Been lanced for abscess many times. Find breast immensely distended and painful to-day. Strap it snugly with adhesive plaster in every direction—completely inclosing the gland in a firm case. This gives it good support, steady pressure, and keeps all the old women's nostrums off." I did not see her again till August 13th, when I wrote: "States that she had considerable pain for two days after strapping, but to-day the secretion is all gone, and breast reduced to nearly its natural size. A perfect success."

There would certainly have been an immense abscess in this breast without the strapping.

III.—Mrs. L. This case occurred last January. Nothing unusual about it. Tenth child, still-born. Neglected to strap breasts next day as I should have done. Milk began to flow very abundantly on the third day. Strap them in the usual manner. Had no trouble whatever with them. Found breasts empty, flabby, and secretion completely arrested on third day after strapping.

Strapping will be of no use unless it is well done. Let the first strip be put on so as to hold the breast well up by itself alone, whichever direction it is made to take. I usually commence by placing a strip laterally beneath the breast, about half-way between the nipple and lower margin, draw the gland well up, and attach one end high up on the sternum and the other end high up under the arm. The next strip is placed at right angles to the first, close to the nipple. Apply to breast first, draw it well up and fasten upper end, letting it pass over the shoulder, then draw down lower end firmly and fasten it. Don't skip the nipple or cover it, but cut holes through the strips that pass over it, and let it project through. This is to allow the milk which may ooze out for the first few hours to escape, without burrowing beneath the plaster, pushing it off, and making a hot, disagreeable, irritating poultice. Several thicknesses of soft cloth should be placed over the nipple (when pervious), to absorb the milk that escapes. This should be renewed as often as it becomes saturated.

A timely application of this plan of strapping I have found almost sure to arrest commencing mammary abscess.

Original Lectures.

Clinical Lecture on Diseases of Women. By Prof. T. Gaillard Thomas, M. D., delivered in the College of Physicians and Surgeons, New York, October 8, 1875. Reported for the New York Medical Journal, by S. B. Jones, Jr., M. D.

The first patient who appears before us to-day, gentlemen, is Mrs. C. P., thirty-two years of age, born in Germany; has been married eleven years, and has had two children, the youngest of which is seven years old. Since the birth of this child she has never been pregnant, and dates her present illness from it.

She comes here to-day in search of relief for the following symptoms: pain in head, back, and limbs; a sense of fatigue and exhaustion, and a feeling of general debility; her menstrual periods are painful and irregular; she suffers from leucorrhœa, which is at times very profuse, constipation, and at times considerable irritability of the bladder. In spite of these symptoms, however, she tells us that she "drags around," and attends to her ordinary avocations.

Before proceeding to more important points, let me draw your attention to the perfectly simple and straightforward manner in which this woman tells her story. You will notice that there is a great difference in this respect among patients; some exaggerate their symptoms, others make as little of them as possible. This patient belongs to the latter class, and impresses me as one who underrates rather than overrates them. We have already heard enough to make us suspect that some abnormal condition exists in the pelvic organs as the source of Mrs. P.'s ill-health, and we at once proceed to an examination of them.

Physical Examination.—Always place the patient upon a table or other *hard* surface when you examine upon the back, otherwise the buttocks will sink down and render examination difficult; place the feet on a chair, or drawn up on the edge of the table; cover the table with a blanket and sheet; have at hand a basin of water and a piece of soap, rather than lard or oil; these are more difficult to obtain, are often rancid, leave a disagreeable odor on the fingers, and render the sense of touch less delicate than soap does, which is always at hand. Lubricate the left index-finger. Have the clothing about the patient's waist loose, so as not to press the uterus down into the pelvis.

Passing my finger into the vagina I examine the cervix. Instead of feeling the normal os, it passes up to the os internum, and I feel a large, roughened surface, covered over with granulations. At once I diagnosticate a condition which is commonly regarded as, or rather mistaken for, granular degeneration of the cervix, but what is in reality a laceration of this part, which occurred with the exit of the child's head from the uterus. Now, practising conjoined manipulation, I find that the uterus is large, heavy, and anteverted. Separating the labia majora, I discover further that all sphincteric action at the ostium vaginæ has been destroyed, that the perineal body has been rent in two, and that the vagina, large and flabby, has prolapsed, both as regards the anterior and posterior wall. Rectocele has not occurred as a result of the prolapse of the latter, but cystocele has followed that of the former.

Changing the position of the patient from the back to the side, I introduce the speculum, and the moment I lift the lax posterior wall, a red or raw-looking surface comes into view. Taking the probe, and bearing in mind the anteversion of the uterus, I pass it to the fundus, and find that the uterus measures three and three-quarter inches instead of two and a half inches.

Now, let me recapitulate for you the abnormal conditions existing in this case, and see how they account for the sterility of seven years' duration, the weakness, pain in head, back, and limbs, leucorrhœa, irregular and painful menstruation, and vesical trouble of which the patient complains: 1. We find the woman suffering from laceration of the cervix uteri; 2. From anteversion of a large, heavy uterus; 3. From rupture of the perinæum; and, 4. From prolapse of a large, lax, and enfeebled vagina. You will begin to think that I am opening before you a perfect Pandora's box, and yet not only is every condition which I have mentioned readily to be discovered, but the pathological combination which is here presented to you is one of very frequent occurrence. I need not tell you that it is sufficient to account for every symptom of which she complains; pain, disordered menstruation, derangement of the nervous system, and leucorrhœa.

Let us now proceed one step farther, and connect the present combination of abnormal conditions with the parturient act, which, occurring seven years ago, changed this woman from a strong, robust person to the suffering invalid of to-day. As the child's head passed through the cervix uteri, this part was lacerated on both sides, and at once the hitherto healthy woman was exposed to the great dangers of puerperal septicæmia. Upon asking her about her convalescence after delivery, she said she "was very bad" with "milk-fever" for seven days, and that her friends thought that she would not live; also, that during this time she had no milk. Now, what she calls "milk-fever" was really puerperal fever. After the birth of the child, the lochial discharge, the detritus from the uterine mucous membrane, pouring over these lacerated surfaces, was absorbed, and the septic material poisoned the system. This is very likely to occur, just as one of you may absorb septic material through a cut on the finger while dissecting. The uterus, after the child's birth, undergoes fatty degeneration, and by this process returns to its original size. But, in this case, owing to the ruptured cervix, this process was but partially performed, and instead of a womb which measures two and one-half inches there is one which measures three and three-quarters.

As the uterus increases by a species of physiological hypertrophy during utero-gestation, and undergoes involution after parturition, so does the vagina and so do the uterine ligaments. Were it otherwise, the child's body, being expelled even before the full term, would inevitably lacerate the former, and every parturient act would be followed by uterine displacement from inefficiency in the latter. The rupture which has here occurred in the perinæum has prevented involution of the vagina, as cervical rupture has interfered with the same process in the uterus; and thus we have now to deal with a uterus larger than normal on account of sub-involution and tending to fall from its position, not only from its own increase of weight, but because it is dragged upon by an abnormally heavy, sub-involuted vagina, the lower portions of which fall out of the pelvis because rupture of the perinæum has destroyed the sphincteric action of the ostium vaginæ. As the bladder rests upon the anterior vaginal wall, prolapse of this has resulted in cystocele, which has helped to pull the fundus uteri forward and to establish anteversion. The prolapsed vagina is one reason why the patient is unable to walk without fatigue. The pain in the back is due to the displacement, and to the fact that the delicate lining membrane of the lacerated cervix is everted, and so exposed to friction in moving, during sexual intercourse, etc., that it causes pain, just as a man accustomed to wear shoes suffers pain when walking barefooted. This also causes some leucorrhœal discharge. The latter, however, is in great degree the result of uterine engorgement, consequent in part on the cervical laceration and in part due to displacement. This engorgement creates and perpetuates general nervous disturbance.

Now, gentlemen, this is a type of a large number of cases; they are very common, and I do not apologize for dwelling upon it. I expect to show you more of them this winter. You will not be able to cure them unless you find out where the trouble lies. This woman has probably been to eight or ten physicians. (To the patient)—"How many doctors have you seen during your illness?" "Nine or ten." And, like another patient we have read of, she "was nothing bettered, but rather grew worse." Let me tell you of the experience of many of the unfortunate women affected like our patient. The invalid calls on Dr. A. Dr. A. examines her and finds an "ulcer," which he treats for a long time with nitrate of silver, and gets something like a mucous membrane to form over it, and the "ulcer" is almost cured, but the patient is not, and so she goes to Dr. B., who finds "displacement of the womb," which he replaces and keeps up with a support; Dr. C. in time finds the ruptured perinæum; Dr. D. later makes the diagnosis of prolapsed vagina; Dr. E. of cystocele, and so on through the number.

There is but one way in which success can be obtained in the treatment of these cases. He who hopes to cure them must view them from a broad, comprehensive, philosophical stand-point which enables him to grasp not one link in the morbid chain, but the continuation of evils which act and react upon each other.

In the instance before us, to what symptom must we first address our attention? How shall we treat this case? Let us begin with the congestion of the uterus. The return circulation is deranged by the malposition; the arteries carrying the blood more quickly than the veins can take it back, the organ is engorged; hence I should replace the womb in order to allow a free venous return, in the hope that the effect of that displacement, the congestion, would disappear after congestion had been lessened by this removal of one of its mechanical causes. Probably, in a fortnight or three weeks, I would etherize the patient, pare the edges of the cervical lacerations after Emmet's method, and sewing them together I should expect in eight days the "large ulcer of the cervix," which eight months of cauterization could not cure, to disappear entirely. The uterus under these two influences would rapidly become smaller, lighter, and less "irritable." Vesical irritation would diminish and vaginal circulation would become freer, because less impeded by pressure upon the veins at the upper part of the vagina. Now I should replace the annihilated perineal body. This would remove tendency to prolapse of the posterior wall, and, by firmly sustaining the anterior, remove that to cystocele.

By this time many of the symptoms from which this patient now suffers would be relieved, and all of them would be benefited. True, sub-involution of uterus and vagina would still exist, but, having removed the prolonged congestion which had existed in these parts, both conditions would be robbed of many of their evil consequences.

Notes of Hospital Practice.

MOUNT SINAI HOSPITAL.

Treatment of Acute and Chronic Rheumatism by Means of Hot Packing.—In a former number of this JOURNAL an account of the treatment in this hospital of acute rheumatism by means of cold packing was published. Since that time hot packing has been tried, and with excellent results. The method of procedure is as follows: The bed is prepared by spreading over it a sheet of rubber cloth, and over this a blanket. Hot blankets are then wrung out of water of a temperature about as hot as the hand can bear, and with these the patient is enveloped. Two or three thicknesses of dry blankets are superimposed, and the whole retained in position till the patient is free from pain—a time varying from two to six hours. When the pack is applied the patient sweats very profusely, as might be supposed, and after its removal no danger has been found to occur. If the pain is confined to one joint, that joint is enveloped by the hot blanket, which is removed as soon as the pain disappears. One case of chronic rheumatism, extending over a period of seven months, was treated by means of local packings, and after slight relapses, occurring at intervals for five weeks, was discharged perfectly cured. This method presents the advantage in private practice of not shocking the friends of the patient as much as the ice and ice-water packings.

Membranous Dysmenorrhœa.—A patient afflicted with this rare disease has been for some time in hospital. The history of the case is as follows: When she was fourteen years of age she began to menstruate. The flow of blood was accompanied by very severe expulsive pains, and she noticed that pieces of membrane made their appearance. At times the membrane had the appearance of a small bladder, due in all probability to the fact that it was a cast of the uterus. This condition of affairs remained unchanged till she entered the hospital, about a year ago. At that time the uterus was enlarged, sensitive, and slightly flexed. It was proposed to change the character of the cavity of the uterus, with the hope of improving the disease, and for this purpose the os was dilated and the galvano-caustic was carried over the whole of the membrane. Shortly after this the patient left the hospital, but has returned recently. She said that, at the menstrual epoch following the cauterization, very little dysmenorrhœa was experienced, but that at the following periods she was as bad as she had been previously. The caustic has been again employed, but it is too soon to decide upon the effect. There can be no doubt that the case is true membranous dysmenorrhœa, inasmuch as several complete membranes have been obtained and preserved.

Diphtheria, Laryngotomy.—A case of diphtheria, with implication of the larynx, has been under treatment here. The dyspnœa was very marked, and laryngotomy was had recourse to. The patient improved very much after the operation, and looks now as if he might recover.

ROOSEVELT HOSPITAL.

Peritsyphlitic Abscess; Operation.—Dr. R. F. Weir operated on a case of abscess in the neighborhood of the cæcum, under the following circumstances: Some time ago the patient suffered from an attack of fever, but the history of the case fails to decide whether it was or was not typhoid. After recovering from the fever, he was attacked with diarrhœa, and about the same time noticed a tumor on the right side. This continued for three weeks, when he entered the hospital. On admission, a tumor about the size of an orange was found on the right iliac fossa, but at no time was the tumor larger than when he entered the hospital. The needle of the aspirator was carried into the tumor, and some pus removed. On the following day the aspirator-needle was again introduced, and with it, serving as a guide, a bistoury was carried down and the abscess freely opened.

Melanosis; Result.—In the report of the Roosevelt Hospital in the number of the NEW YORK MEDICAL JOURNAL for June, 1875, a case of melanosis is referred to. Since that time the patient has died from exhaustion, and at the *post-mortem* all of the tissues were found to be stained with pigment. Melanotic tumors were found on the mesentery, and one small tumor was found on the surface of the brain; but, at the time of death, it was not of sufficient size to give rise to any cerebral symptoms.

CHARITY HOSPITAL.

School for Nurses.—There has been recently established, in connection with this hospital, a school for nurses, somewhat similar in arrangement to that at Bellevue Hospital. It differs, however, in the fact that here it is not a separate organization, but is under the charge of Dr. D. H. Kitchen, the Chief-of-staff. Lectures are delivered twice a week, on subjects connected with nursing, by the Chief-of-staff and different members of the Medical Board.

Hemiplegia; Use of Strychnia.—A patient, aged twenty-five, entered the hospital suffering from right hemiplegia. The history pointed to its gradual invasion, and the only cause which could be assigned was an injury of the head, received when he was a child. Strychnia in the following form was administered:

℞. Strychniæ, gr. j.
Acid. acetic., ʒ ss.
Tr. card. co., ʒ ss.
Spts. vin. rect., ℥ jss.
Aquæ, ℥ jss.
Syrup. simp. ad., ℥ jv.

Teaspoonful three times a day. Under this treatment the case is improving.

Hemiplegia; Use of Ergot.—This case of hemiplegia had a somewhat similar history to the previous one. On admission there was no loss of sensibility, but there was complete hemiplegia. Bromide of potassium was given in fifteen-grain doses, but no improvement of the paralysis took place. The fluid extract of ergot was then administered in half-drachm doses, and at the end of three weeks he was able to raise the leg slightly. By degrees the paralysis improved sufficiently to allow of him to walk across the ward. The dose of the ergot was increased to one drachm three times a day, and at the present time he is nearly well.

The Earth-Treatment in Ulcers.—Dr. F. M. Trask has been employing the earth-treatment in chronic ulcers with marked benefit. The method of using it is to first bring the ulcer into proper condition by means of nitrate of silver, or other agents indicated. When the ulcer is thus prepared, twenty-five or thirty grafts are inserted, and the whole covered by clay, in the following manner: The dry clay is mixed up with olive-oil, to the consistence of a paste, and applied twice a day. The results obtained are highly satisfactory; more favorable, indeed, than by any of the other measures. The introduction of the method was due to Dr. Pallen.

BELLEVUE HOSPITAL, NEW YORK.

Jaborandi.—Dr. Janeway has been using jaborandi, but has not been able to get as satisfactory effects as have been reported by some observers. One drachm of the powder was given in the form of an infusion of four ounces, and at the end of a half-hour there was an increase of the temperature of ½°, with slight tendency to diaphoresis. In the second case, one drachm was given mixed with water, and again no result followed, beyond an increase in the frequency of the pulse. In the third case, Dr. Knox, the house-physician, took one drachm mixed with water. In forty-five minutes marked salivation occurred, but no diaphoresis. These observations would go to show that some of the conditions favorable to diaphoresis were present, such as increase of temperature, and, if the patients were heavily covered with clothing, diaphoresis might result.

Apomorphia.—Apomorphia is an active emetic, in doses of from one-tenth to one-eighth of a grain, when administered hypodermically, the emesis coming on in one or two minutes; in one case it was delayed for fifteen minutes. The objection attending its use is, that it occasions a tendency to syncope.

The Use of Remedies upon the Mucous Membrane of the Tra-

chea.—Claude Bernard, in his recent work, has drawn attention to the fact that, contrary to what is generally supposed, agents can be introduced within the trachea without causing irritation. The advantages obtained in a therapeutic point of view are, that they are quickly absorbed, even when absorption is in abeyance in other parts of the system. Jousset records the introduction of five grains of quinine upon the mucous membrane of the trachea, in a case of congestive chill, where the patient was nearly moribund, and in this case the patient rallied. The quinine was given in solution. Dr. Janeway had a case of obstinate vomiting in a patient, in which collapse appeared two days later. She was admitted into the hospital, and hypodermics of brandy were given without avail. It was then determined to try their effect on the trachea, and for this purpose half a drachm of brandy mixed with half a drachm of water was introduced within the trachea, by means of the hypodermic syringe. No irritation resulted, but there was no improvement, and the patient died a few hours later. At the autopsy no sign of irritation was discovered on the bronchial mucous membrane.

The part of the larynx which is sensitive is that which is supplied by branches of the superior laryngeal nerve.

Correspondence.

NEWARK, N. J., *October* 5, 1875.

EDITOR NEW YORK MEDICAL JOURNAL:

Upon reading your review of Dr. Brackenridge's article on quinine as a local application in diphtheritic scarlatina and other forms of sore-throat, I am led to write you of a considerable experience with it in another form, and a remarkable success after failure of many other remedies. It is now eight years since a physician, who had been fifty years in practice, suggested for a patient of mine, suffering from ulcerative stomatitis, a mixture of Peruvian bark, acacia, and sugar, made into a paste with cream; its success then led me to use it in one case after another with the same result; and in scarlatina, diphtheria, and all aphthous affections, it has proved invaluable.

The use of quinine as a topical remedy for hay-asthma revived the experience of its value; and I have reason to believe that the physician to whom I am indebted for its suggestion had used it for several years before Binz published his interesting experiments. The following is the formula alluded to:

℞.	Corticis Peruvianæ flav.,	ʒ ij.	
	Acaciæ pulv.,	ʒ j.	
	Sacch. alb.,	ʒ ss.	M.

S. Mix one-half of this powder in a table-spoonful of cream, and apply frequently with a camel's-hair brush.

Edgar Holden, M. D.

Proceedings of Societies.

BOSTON SOCIETY OF MEDICAL SCIENCES.

Report of Proceedings from April to May, 1875.

James J. Putnam, M. D., *Secretary.*

Tuesday, April 27th.—Dr. Warren showed some microscopic specimens of *round-cell sarcoma*, which, arising in the tissue beneath the skin of the back, had, at the time of its removal, begun to infiltrate through the superjacent cutis.

The skin over the most prominent part of the growth was thickened, and, on vertical section, showed beneath it the outline of the disease tolerably well defined, but from this point projecting upward to the surface were several slender, parallel columns, at equal distances from one another, and reaching the epidermis at points where the little dimples made by the openings of the hair-follicles were to be seen.

Topographical sections of the part, made by Dr. Quincy, showed that in forming these columns the disease had followed the hair-follicles and sweat-ducts. The sweat-ducts could not be traced to the surface in these prolongations in all cases, but the hair-follicles were almost invariably found. More minute examination of the intervening cutis showed the connective-tissue fibres at many points to be indiscriminately mingled with small round cells.

It was noticeable that the prolongations were vertical, and had but few, if any, horizontal branches.

The above observations upon the seat of these parts of the growth were confirmed by the appearances seen in horizontal sections.

The route which the disease had taken in trying to reach the surface suggested an invasion of the skin at its weakest points, where it was, from its anatomical structure, least prepared to resist pressure from below. The study of this specimen suggested also a possible explanation of the manner in which inflammatory products may find their way to the surface of the skin.

Dr. Warren spoke also of several instances, which had recently come to his knowledge, of the occurrence of *wens in unusual places*, viz.:

1. On the palmar surface of the little finger.
2. On the back of the wrist.
3. (Not certainly a wen) on the palm of the hand.

Dr. Bowditch showed a specimen of *water from an Artesian well*, which had been sunk in Causeway Street, for the use of the gas company. It had a bitter taste, and contained a good deal of solid matter in suspension. Its characteristic quality was, however, that it contained a good deal of *chloride of calcium* in solution, and, knowing this, it had occurred to Dr. Bowditch that it might be used to advantage for watering the city streets, on account of the tendency of that salt to retain and absorb moisture. He had as yet tried but a few preliminary experiments to test the value of the water for this purpose, with moderately satisfactory results.

Tuesday, May 25th.—Dr. Bowditch showed the *model of a new induction apparatus*, devised by himself. The most common method of regulating the intensity of the current, with the usual induction-machine, is to draw apart the two coils of wire, or the reverse, while their axes are kept in the same straight line. The well-known "sledge apparatus" of Du Bois-Reymond is constructed on this principle. By this method very feeble currents can only be obtained by separating the coils to a considerable distance, and instruments made to allow of this have a length which is often inconvenient.

The model presented was intended to illustrate how this difficulty may be obviated; namely, by providing that the secondary coil, so soon as it has been withdrawn enough to be fairly free of the primary coil, can be rotated round its vertical axis. In this way the intensity of the induced current may be reduced, and, when the axes of the two coils are at right angles with each other, an absolute zero is obtained, which is impossible when the coils are simply drawn apart with their axes in the same straight line. The effect of simple rotation of the secondary coil, regarded by itself, would doubtless be to cause the intensity of the induced current from that coil to vary in the same proportion with the cosine of the angle of rotation. This effect is, however, complicated, in fact, by the variation in the distance of the different parts of the two coils from each other which attends the rotation of one coil. It is accordingly found that the curve which represents the actual variations in intensity produced in the way described—obtained by measuring with the galvanometer the intensity of single induction-shocks after each rotation through ten degrees—differs considerably from the curve of the cosines. An apparatus of this sort would, therefore, like the ordinary instrument, require an empirical graduation.

Dr. Warren showed a specimen of *callus* on a rabbit's leg, of fourteen days' growth, and called attention to the fact that it illustrated the statement that had been made, that the periosteum was not the only agent for the production of the callus, but that the other soft parts were active in the same direction.

Another specimen showed the repair which had taken place fourteen days after *section of the tendo-Achillis.* Here the new tissue had been developed from the sheath of the tendon.

Dr. Putnam spoke of a *case of loss of sensibility* to impressions usually causing pain, and, to a great extent, to changes of temperature, with preservation of the sense of touch, affecting almost the entire cutaneous distribution of the cervical and brachial plexus, and of some of the intercostal nerves, all upon the left side, coming on in a young and otherwise healthy man, after an attack of typhoid fever. The case will be more fully reported elsewhere.

MEDICAL LIBRARY AND JOURNAL ASSOCIATION.

Stated Meeting, October 8, 1875.

Dr. E. R. Peaslee, President.

On the Transmission of Syphilis from Child to Nurse. By Dr. R. W. Taylor.—Dr. Taylor read an important paper on the subject of contamination of the nurse by an infected child, and made the history of one case that came under his observation serve as a text for the principal part of his remarks. The history of the case was briefly as follows: A woman was confined at a lying-in asylum in this city, and after delivery the care of several infants was intrusted to her. She herself was a primipara, and was delivered of a healthy child. Among the nurslings that were put to her breast were two who had constitutional syphilis, as the after-history proved. The woman took these children to nurse under protest, and adopted the wise precaution of retaining one of her breasts for her own child, allowing each of the other children to nurse at the other breast. After a few weeks she detected a sore on the nipple of the breast which had nourished the infected children; and this sore, on careful examination, showed itself to be a true chancre. This latter fact was still further proved by constitutional symptoms following.

The really important bearing of the paper was in regard to prophylaxis in other cases, and Dr. Taylor suggested that, inasmuch as seventy per cent. of syphilitic children have buccal lesions, it is important that the physician examine closely suspected children before exposing the nurse to the danger of contracting syphilis.

[The main obstacle that presents itself is the diagnosis of specific ulceration of the mouth from the non-syphilitic; and we are of the opinion that this is more difficult than Dr. Taylor would lead us to believe.

In institutions where large numbers of children are cared for, it becomes an exceedingly difficult subject to distinguish the diverse forms of stomatitis in the non-syphilitic child from the buccal manifestations in syphilitic children. Again, children suffering from inanition have, to a certain extent, the dried-up appearance of those infected with syphilis, and coryza or the snuffles is common to all children. The eruption must be considered as the determining symptom, and in default of that a child otherwise affected can only be looked on with suspicion, varying in degree with the number and prominence of decided syphilitic symptoms. We agree, however, with Dr. Taylor in the propriety of watching closely all suspected children, and not allowing them to be taken to the breast of a non-syphilitic woman. Dr. Taylor based his remarks on one case; but we have had occasion to investigate the subject in a large institution in this city, and found only one well-marked case where the woman contracted syphilis from the child. There were other cases of syphilitic women nursing syphilitic children, but there was the grave suspicion that they contracted it before the birth of their own child. Dr. Taylor said that a true chancre on the nipple was liable to begin as a pimple or a small fissure, and extend. J. J. R.]

Exhibition of a Vaginal Douche.—Dr. F. P. Foster exhibited a vaginal douche which was intended to prevent the wetting of the linen of the patient during the administration of the douche. The instrument consisted of one tube to convey the water to the vagina, and another to carry it away, with a plug which closed tightly the orifice of the vagina.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, September 27, 1875.

Dr. Thomas Addis Emmet in the chair.

Post-Nasal Catarrh. By Dr. Beverly Robinson.—After the nomination of officers, Dr. Robinson read a complete and valuable paper on post-nasal catarrh, giving a summary of his investigations in this disease. He said the disease was follicular, and situated in the nasal and naso-pharyngeal cavities. The two symptoms which were usually complained of by patients were a sense of stuffiness in the posterior part of the nose, and a continuous discharge of mucus posteriorly into the pharynx. The mucus may become hardened, and adhere to the mucous membrane, giving rise to inflammation and ulceration, and when this occurred the discharge became fetid in character.

Dr. Robinson said that, unfortunately, no method of treatment, so far pursued or advised, had been curative in every case, and this resulted in great part from the fact that it was impossible to apply remedies to every portion of the diseased membrane. The results of his observation were to the effect that constitutional treatment proved a most important element in the case. If the patient was anæmic, iron, quinine, and cod-liver oil proved of decided advantage; and if there was malaria present, it had to be combated by a sufficient amount of quinine. Of the agents which have a local effect on the naso-pharyngeal and pharyngeal mucous membranes, he had experimented with balsam-copaiba, cubebs, guaiacum, ammoniacum, and sulphur, and was led to the conclusion that the three most important were cubebs, sulphur, and copaiba, and of these he was in favor of cubebs. At first he had used the oleo-resin of cubebs, but found that it did not possess the virtues of cubebs itself. A form that had proved satisfactory was: cubebs, two ounces; sirup of orange, three ounces; mint-water, eight ounces—and of this half a drachm was to be administered every three or four hours. It was necessary to continue the cubebs for one or two months, and by its use the sensation of stuffiness in the head and hawking mucus may be relieved.

Diarrhœa or an herpetic eruption may appear during the use of the cubebs, and, if so, it is judicious to interrupt its administration for a few days.

In cases of syphilis, Dr. Robinson doubts the value of the iodide of potassium, and prefers to rely on mercurials. In respect to the local treatment, by means of applications, all of the advertised specifics had been made trial of, but without advantage, and so far no agent had been brought forward which was satisfactory in its results. One important reason for this was, as has been already suggested, that they did not reach the whole of the diseased surface. Injections were dangerous, as had been pointed out by Dr. St. John Roosa, from occasionally causing otitis. The use of spray offered advantages in this respect, not only from being free from the dangers of injections, but also from the fact that, being in an atomized state, they more readily reached the whole site of the diseased surface. The main benefit to be derived, however, from any of the local agents, was to soften the mucus, and accelerate its removal. Dr. Robinson mentioned also, that he had used the inhalation of vapors, such as iodine, in some cases with apparent advantage, and had also practised the insufflation of powders. He presented an instrument by which the medicated powder could be blown through the nares with great facility.

Dr. Bulkley mentioned the fact that he found in his own person that derangement of the digestive organs was usually accompanied by an attack of post-nasal catarrh.

Dr. Burrall said that he had used with benefit an injection of salt-water. He had made some observations with belladonna, but had not, so far, arrived at any positive results. He was led to use belladonna from its peculiar effect on the throat. He thought that Dr. Robinson's paper must be considered as a valuable contribution to the literature of the subject of post-nasal catarrh.

Adjourned Meeting, October 12, 1875.

Dr. Thomas Addis Emmet, Vice-President, in the chair.

The Genesis of an Epidemic Puerperal Fever.—Dr. W. T. Lusk read a lengthy paper on the above subject, giving the history of the last epidemic of puerperal fever which took place within the walls of Bellevue Hospital. A special point of interest connected with the epidemic was the fact that, as it progressed, it was characterized by a diphtheritic membrane, occurring on the genitalia of patients who had received laceration of the perinæum or the fourchette. While this was occurring at Bellevue, an epidemic presenting similar features occurred at the Philadelphia Hospital, and since that time there had been observed at Strasburg cases of puerperal fever complicated with this element of diphtheria. The diphtheritic deposit had been closely examined by Dr. Steurer, of this city, and Prof. Recklinghausen, of Strasburg, and the conclusions arrived at were that it was truly diphtheritic—micrococci were found beneath the deposit and scattered throughout the tissues of the uterus, whence they were taken up by the sinuses and conveyed into the circulation. They occur in colonies, and have been found in the blood-vessels of the kidney. Dr. Lusk said that he obtained decided benefit by applying Churchill's tincture of iodine to the membrane. During June, 1874, the obstetrical service which had proved so unfortunate was transferred to Charity Hospital at Blackwell's Island, and three months after the infected wards had been emptied they were occupied by the surgical service of Dr. James R. Wood, and during the past year many cases of capital operations have been cared for in them, and in no instance has there been septicæmia or pyæmia.

Dr. Cock, in response to a call from the chair, said that the paper of Dr. Lusk presented a fearful record, and a grave responsibility rested with those who retained the obstetrical service in Bellevue. He said that he was an assistant physician in Bellevue Hospital in 1840, when the first epidemic of puerperal fever broke out. The grand-jury, at that time, took the matter in hand, and closed the obstetric wards, but ten years later another epidemic appeared.

Dr. Gillette gave an interesting history of the cases that were transferred from Dr. Lusk's wards in Bellevue to his service at Charity Hospital. He said the waiting women were received at Blackwell's Island on June 11, 1874, and located in pavilions. The first patient that was delivered suffered from puerperal fever, but recovered. The second patient had also a mild attack of the fever. Both patients were delivered within forty-eight hours. It then became obvious that the patients had carried with them the fever-poison, inasmuch as the obstetric patients in the lying-in wards proper of Charity Hospital were entirely free from the disease. In order to eradicate all traces of the poison, the clothing of the patients was taken away, a thorough bathing practised, and new clothing furnished. Quinine was also administered internally. After this precaution, no other cases of fever occurred, but a noticeable feature in the clinical history of the cases was, that the majority of the patients had elevated pulses, and temperatures showing that they had not entirely recovered from the fever-poison which they had absorbed in the wards of Bellevue Hospital. Dr. Gillette said that the practice in Charity Hospital was to remove fever patients as soon as the disease appeared, and at the same time the physician and nurse who had been in attendance on them accompanied them, and did not see any of the other patients.

Drs. Fordyce Barker, Isaac E. Taylor, and Mary Putnam-Jacobi, made some remarks.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, September 16, 1875.

Dr. S. S. Purple, President.

The President welcomed the members to the Academy after the summer recess. He pointed out, in a few words, the lines of investigation which were specially indicated at the present time, such as the causes of the recent spread and present continuance of small-pox, the treatment and etiology of continued fevers, etc. The Librarian announced the receipt of numerous volumes for the library; among others, one thousand volumes of periodicals from the President.

What is the Best Treatment in Contracted Pelvis? By Dr. Isaac E. Taylor. *Placental Hœmatocele.*—Dr. Taylor, before reading the paper of the evening, presented a case of placental hæmatocele, in which the hæmorrhage took place between the chorion and amnion. The case came under his observation that morning, and was of special interest from its rarity. The patient had a convulsion, and was delivered by forceps. Another point of interest in the case was the presence of a thrombus in the right labium.

Treatment of Contracted Pelvis.—Dr. Taylor said that, in the consideration of the treatment of contracted pelvis, he would divide the subject into two parts: First, that in which the contraction was from two and a half to four inches; and, secondly, that in which the contraction was from two and a half to one and a half inch. He proposed to consider only the first class of cases for the present occasion; and, in their treatment thought that craniotomy was not indicated for the delivery of the patient in the great majority of cases, but that the choice rested between the forceps and version.

Dr. Taylor presented two deformed pelves, one of which was known as the uniformly contracted pelvis, and the other as the flat pelvis.

He presented also a fœtal head delivered by the forceps, in which the indentation caused by the promontory of the sacrum was nearly an inch in depth. The notes of two cases were read. In one the pelvis was of the simple flat form, and not rickety. The patient was aged twenty-three, and an inmate of Bellevue Hospital. She was delivered in thirty minutes by means of version. The second case was one of uniformly contracted pelvis, in which the antero-posterior measurement of the brim was three and three-quarters inches. In this latter case the cervix was only slightly dilated; and, contrary to the opinion of the majority, Dr. Taylor introduced the forceps within the undilated os uteri, and delivered the head of the child with considerable effort. The forceps that he used were after the model of Ritgen, but they had an extremely narrow blade, measuring not over two inches in width.

If the forceps proved unavailing to apply the requisite force, the woman might be safely delivered by means of version.

Dr. Taylor said that he was of the opinion that induced labor at the seventh or eighth month in cases of contracted pelvis was in many occasions indicated for the welfare both of mother and child.

On motion, the discussion was postponed till the next stated meeting.

This fall the library of the Academy has been opened to the Fellows, and, although not as extensive as might be wished for, presents a large collection of periodical literature. It is situated on the second floor of the building.

The Academy has added a new feature to its meetings by having at the close of the proceedings a *conversazione*, somewhat after the method adopted by the Medical Library and Journal Association.

Stated Meeting, October 7, 1875.

Dr. S. S. Purple, President.

The President called attention to the death of two resident Fellows, Dr. Ernst Krackowizer and Dr. Cyrus Weeks. He appointed Dr. Jacobi to read a memoir on Dr. Krackowizer, and Dr. Finnel to read one on Dr. Weeks.

Dr. John Erich Erichsen was chosen a Corresponding Fellow.

Dr. Isaac E. Taylor recapitulated the leading points in the paper read before the last meeting, and took occasion to say that he did not agree with Dr. Goodell, of Philadelphia, who maintained that the neck of a fœtus would stand a tractile force of 150 pounds before it would separate from the head. In Dr. Taylor's hands several cases suffered decapitation, leaving the head in the uterus when a force not equivalent to 150 pounds had been exerted. He was of the opinion, also, that the lateral diameter of the fœtal head could be reduced one half-inch by the use of the forceps, and no special danger ensue. He thought also, in a similar manner, that the antero-posterior diameter could be reduced seven-eighths of an inch with safety.

Dr. E. R. Peaslee was of the opinion that Dr. Taylor's position could not be controverted. The subject was one of the most difficult to understand in the whole range of obstetrics, and one in which there was the greatest diversity of opinion.

Dr. Hanks related a case which bore on the subject under discussion. He was called to see a patient in January, 1869, in which labor had been in progress for six hours before his arrival. He waited for four hours, and no additional advance was made, though the vortex had entered the superior strait. He found the patient to have a flat pelvis, and by the aid of the forceps delivered the woman, after two hours, of a still-born child. The patient in a few months again became pregnant, and at the end of the eighth month induced labor delivered a still-born child by means of version. The patient again became pregnant, and at the end of the eighth month he again induced labor, but proposed to use the forceps, believing it would be productive of better results. On that occasion a child was delivered which lived for a few days and died of inanition. The patient again became pregnant, but passed into other hands. She was delivered of a still-born child, and in a few days after died of broncho-pneumonia.

Pneumatometry in Disease.—Dr. LOUIS ELSBERG read a paper on this subject, which will be found in full elsewhere in this journal.

Dr. JOHN C. DALTON presented the following series of resolutions in regard to the late Dr. Foster Swift, a former member of the Academy. On motion, a copy of them was authorized to be sent to the family of the deceased, and on further motion copies were authorized to be sent to the medical journals:

Whereas, The members of the Academy have learned with regret of the death of their former associate, Dr. Foster Swift: therefore—

Resolved, That in Dr. Swift the Academy and the profession have lost a member whose personal character commanded the esteem of all those who knew him, whose brilliant talents gave sure promise of future distinction, and who was eminently fitted by his superior attainments, his singleness of purpose, and his engaging manner, for a prolonged life of usefulness and success. Also—

Resolved, That a certified copy of these resolutions be transmitted to the family of Dr. Swift as an assurance of the sympathy of the Academy in his loss, and of their high appreciation of his personal and professional qualities.

Dr. Dalton gave an interesting sketch of the life of Dr. Swift while suffering from his disease—phthisis. He first went to Mentone, France, and proposed establishing himself there, but found that he could not live away from his friends. He then retired into the interior of this State, and interested himself in the studies of his boyhood's days, particularly the classics. During last winter he went to Santa Cruz, to visit some of his friends living there, and on May 10th he died.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, September 22, 1875.

DR. FRANCIS DELAFIELD, President.

Diaphragmatic Hernia; Death.—Dr. DRAKE presented a specimen of diaphragmatic hernia which had continued for two years, and, at the end of that time, ulceration and perforation of the gut took place, causing fatal peritonitis. The history of the case was as follows: A mason, aged forty-two, while engaged in the Fourth Avenue tunnel, received a stroke on his head from a descending stone-bucket. The shock was sufficient to flex his knees upon his body. He was taken to the Reception Hospital, on Ninetieth Street, where he remained for four months, and, at the end of that time, was able to leave the hospital and engage in work of a light character. Occasionally he vomited blood freely, and complained of pain situated on the left side. On August 24th the pains became of a griping character, and were attended with constipation and tympanites. He entered Charity Hospital August 27th, nearly two years after the injury, and it was then found that there was tympanites, but no tenderness at any point. The pulse and temperature were normal. On August 31st pain appeared in the left hypochondrium, accompanied by nausea and vomiting, and from this point it extended over the abdomen. On September 2d he died.

Autopsy.—The intestines were matted together with fibrine. The abdominal cavity was filled with fæces, and, in the left side of the diaphragm, a mass of omentum and intestines protruded into the cavity of the pleura. In the pleura was found about four ounces of fluid. On examining the gut it was found to be ulcerated and perforated near where it was engorged in the diaphragm, and, from the history of the case, it was evident that the attack of peritonitis was caused by this ulceration and perforation of the intestine.

Ovarian Tumor.—Dr. Sell presented two specimens of ovarian fluid, which he had removed by tapping. The first specimen was dark-colored, in consequence of hæmorrhage into the cyst. The second specimen came from another patient, and was of a gray color, due to the formation of pus within the sac. The first case was only temporarily relieved, but the second case shows signs of being permanently benefited.

Congenital Sarcoma of Arm.—Dr. Post presented the arm of a child, which he had amputated under the following circumstances: At birth a fungous mass was found at the lower part of the forearm. This was found to bleed very freely, and, after failing to remove it, amputation of the forearm was found necessary. The amputation was performed when the child was thirty-two days old. An examination of the growth by the microscope showed it to be sarcomatous in structure. Dr. Delafield said that some cases similar to the one presented were recorded in the last volume of "Guy's Hospital Reports."

Caries of the Vertebræ; Atrophy of the Cord.—Dr. Gibney presented the portion of a spinal cord and several carious vertebræ, with the following history: A boy, aged sixteen, entered the Hospital for the Ruptured and Crippled suffering from caries of the dorsal vertebræ. During the past eighteen months there has been paraplegia, and for the past four months kyphosis of the middle dorsal vertebræ. Latterly the sphincters have been involved in the paralysis, and eventually pneumonia occurred, and the patient died. At the autopsy the dorsal vertebræ were arched, the arch extending from the second to the twelfth vertebræ. The middle of the arch was found to exist at the sixth, seventh, and eighth vertebræ, and, in front of this there was a sac containing a curdy material, which proved to be inspissated pus. Pressure was made on the cord by the eighth vertebræ, and in this manner the paralysis could be accounted for. An examination of the cord showed it to be atrophied for a distance of two inches at the place corresponding to the deepest part of the arch. The atrophied portion showed no trace of blood-vessels, but immediately above it these were very distinct.

Stated Meeting, October 13, 1875.

Dr. Francis Delafield, President.

Necrosis of Bone without Involucrum.—Dr. Erskine Mason presented a specimen of necrosed bone, and also the patient from whom the bone was removed. The history of the case was of special interest, not only from its rarity, but also from the very valuable result which was obtained. The history was as follows: A boy, aged six years, entered Bellevue Hospital, November 9, 1874, suffering from an injury in the vicinity of the knee. The history was not satisfactory, but the facts obtained went to show that he fell down some steps and struck on his knee. When he entered the hospital ward he complained of severe pain; the knee was flexed on the thigh, and the thigh on the abdomen. The temperature was 103°. During the first five days he had delirium and insomnia, and, although there was no swelling of the knee, the patient experienced great pain when it was touched. After careful examination, no signs of fracture could be obtained. After some days the thigh began to swell, and on November 23d fluctuation was discovered over the inner condyle. The abscess, when evacuated, was found to contain six ounces of pus. Shortly afterward synovitis developed, and extension was applied to the limb. Fluctuation was detected near Poupart's ligament, and, after opening the abscess, a seton of oakum was introduced. For several months he improved pretty steadily, but at times would suffer a relapse. On February 18th a fracture was detected at the junction of the upper and middle thirds of the thigh, and at the time it was supposed to be a fracture of the involucrum. It was determined to remove the necrosed bone by cutting through the supposed involucrum, and on April 3d an incision was made through the soft parts, and, to the great surprise of Dr. Mason and the other surgeons, no sign of an involucrum could be detected, but instead a piece of necrosed femur, five and a half inches in length, which was detached at either end. This fragment consisted of the whole thickness of the femur, and rested in thickened periosteum. The dead bone was removed, and the limb put up immediately in plaster-of-Paris dressing. The wound closed on May 28th, and at the present time there is perfect motion in the hip and knee joints. There is a shortening of the limb to the extent of an inch and an eighth, but in other respects the limb is perfect. Dr. Mason said he considered the case to be one of osteo-myelitis, with periostitis occurring secondarily.

Tumor of Neck; Sudden Death.—Dr. Beverly Robinson presented a tumor of the neck of the class that has been described by Virchow as *struma gelatinosa vasculosa.* The history was as follows: The patient was aged sixteen, and first noticed an enlargement in her neck. Some months previously, when she was seen by Dr. Robinson, the tumor extended from the sternum to the upper border of the thyroid gland, and was divisible into two lobes. It was of uniform density, and apparently an hypertrophy of the thyroid gland. On auscultation, a wheezing murmur was heard over the whole extent of it. The patient complained of a dry, ringing cough, accompanied with dyspnœa on exertion. It was proposed to try the effect of electrolysis on the growth, and for this purpose a needle was inserted into the middle of it, and a Drescher's battery of twelve cells employed. This was continued at intervals of two or three days, and resulted in a decrease in size of the growth. Some months after this Dr. Robinson was suddenly called to see her, and found that the tumor had enlarged very much, and that she was suffering from asphyxia. In less than an hour she died. It was found that, as the heart ceased to contract, the tumor decreased perceptibly in size. At the autopsy the tumor was found engorged with blood, and on incision a considerable quantity escaped. The growth extended from the top of the thyroid cartilage down to the sternum. The trachea was involved, and to a certain extent compressed by it. In answer to a question from the President, Dr. Robinson said there was no sign of œdema of the glottis.

Ossification of the Muscles.—Dr. Gibney presented a girl, with ossification of the muscles. She was aged ten. Last fall she had an attack of diphtheria, and some months later her mother noticed that she stooped forward and could not maintain herself in an erect position. Some time after this a hard tumor appeared on her back below the scapula. When Dr. Gibney presented her to the Society, the latissimus dorsi showed signs of ossification. The erector spinæ and scaleni were also involved. The hard tumor found near the scapula was evidently an ossified muscle. The case is of great interest from its rarity, and also from the fact that it shows a tendency to the progressive form.

Dr. JANEWAY said that it was the first case of the kind that he had seen, and suggested the breaking up of the latissimus dorsi.

Dr. KNAPP said that he met a similar case in Heidelberg.

Dr. HEITZMAN suggested the use of lactic acid internally to act as a solvent on the earthy matter.

Fatty Tumor.—Dr. POST presented a large specimen of fatty tumor which he had removed from a patient.

Lymph-Adenoma.—Dr. JANEWAY presented specimens of a liver which showed numerous lymph-adenomatous tumors. The history of the case was only remarkable for the extreme anæmia of the patient. He was a man aged thirty-six, who had no history of syphilis. He entered Bellevue Hospital, August 28, 1875, suffering from chilly sensations, accompanied by sweating. The lungs and heart were normal. Quinine was given to him, but no improvement took place. The spleen was slightly enlarged, but the liver was found to extend over to the umbilicus. On October 3d, severe pain, of a colicky nature, was complained of in the epigastrium, and on October 10th he died from syncope induced by the severe paroxysm of pain.

Autopsy.—The liver was enlarged, and there were scattered through it small granules, presenting the histological characteristics of lymph-adenoma. The surface of the liver was perfectly smooth. The spleen was enlarged and softened. The mesenteric glands were not enlarged. The marrow of the femur was gone, and in its stead there was a red substance consisting of blood-globules, and a deposit similar to that found in the liver. The kidney also contained this lymph-adenomatous material. Dr. Janeway said that the marked anæmia of the patient during life gave rise to the suspicion of leucocythæmia, but, on examination, it was proved not to be correct.

The appearance of the liver would be liable to lead one to the view that cancer existed, but there was no enlargement of the glands in the proximity.

Softening of the Brain ; Cross-Paralysis.—Dr. J. Lewis Smith presented a brain which he had removed from a case at Charity Hospital, under the following circumstances: The patient was aged fifty-two, and entered the hospital, September 24, 1875, complaining of pain in the occiput and lumbar region. There had been previously slight paralysis, but latterly this had improved. One afternoon, about one o'clock, while outside the building, in company with the convalescent patients, he became comatose, and, on examining him, the right side was found to be convulsed. The convulsions were of the tremor variety, and continued with intermissions every few minutes. At 2 P. M. the temperature was found to be 107¾° on the right side, and 103½° on the left. At 3 P. M. the temperature was 108° on the right side, and 104 on the left. At 6 P. M. he died, comatose.

Autopsy.—The brain externally showed nothing abnormal, with the exception of atheromatous vessels at the base. On section, each lateral ventricle was found to contain between two and three ounces of fluid. The posterior part of the thalamus opticus and corpus striatum contained small cysts, and in the pons Varolii there was a slight extravasation, but not enough to account for the symptoms.

The most important point in the history of the case was the fact of cross-paralysis, the paralysis involving the left side of the face and right side of the body. This was due, in all probability, to the disease situated in the pons Varolii. Beyond the cysts there was not found any lesion to account for the convulsive attack.

Dr. Heitzman reported on a case of testicle presented by Dr. Sands about a year ago. It was of a decidedly malignant nature, and in part formed of round-celled sarcoma.

Bibliographical and Literary Notes.

ART. I.—*Sixth Annual Report of the Board of Health of Massachusetts.* 8vo, pp. 379. Boston, January, 1875.

THE Board of Health of Massachusetts continues active in its efforts to bring about a complete system of sanitary reform, and we are glad to observe the success which has attended its efforts.

Following the "General Report of the Board," Dr. Henry I. Bowditch writes a very pointed article entitled "Inebriate Asylums or Hospitals," in which he holds that all drunkards should be debarred from civil rights, and should be confined in asylums created for the purpose. His views are supported by sound arguments, and might with propriety be considered in all the States.

"The Value of Health to the State," by W. E. Boardman, M. D., is the subject of the next article. The author argues that the State can afford even large outlays for the health of the people, viewed simply as an economical investment.

J. C. Hoadley, Esq., contributes an excellent article "On the Transportation of Live-Stock," one with which every one concerned in the transportation of stock should be familiar.

Dr. Charles F. Folsom, Secretary of the Board, contributes an elaborate and very practical paper on "Our Meat-Supply and Public Health." In addition to the discussion of topics pertaining to known infections of meat, the author calls attention to injuries which meat frequently sustains by the fright and exhaustion of animals previous to slaughter.

J. N. Meriam, Esq., makes a report "On the Brighton Abattoir." Fleck and Pettenkofer have demonstrated that the "ground-atmosphere" becomes rich in carbonic acid the lower it descends. Wm. Ripley Nichols, in his article "On the Composition of the Air of the Ground-Atmosphere," makes use of their investigations. He does not attempt to explain the occurrence of carbonic acid in the quantity in which it is found, but explains its diffusion by the temperature of the soil and depth of the ground-water. It is not produced by the ground-water. Pettenkofer[1] thinks it is due to the decomposition of organic matter in the soil. The author does not determine the practical conclusion of these investigations. Pettenkofer[2] lays great stress on the condition of the ground-atmosphere in the production of disease, and thinks, when the ground is charged with cholera-poison, that the temperature above induces a current in an upward direction, and thus disseminates the poison above-ground and propagates cholera.

"Ventilation of Railroad Cars," by Theodore W. Fisher, M. D., with "Chemical Analysis," by Wm. R. Nichols, is the subject of the succeeding article.

A very elaborate and carefully-prepared contribution is written by J. F. A. Adams, M. D., entitled "Cremation and Burial: An Examination of their Relative Advantages." The author gives a full history of *both methods* of disposal of the dead, and, after gathering all the evidence, *pro* and *con*, for either, arrives at the conclusion that burial, if properly performed, is sufficient for all sanitary purposes.

Following the above is an article entitled "Health of Towns;" and, closing the volume, is a "Report on the Sanitary Condition of the State-prison at Charlestown."

We wish that the Reports issued by the Board of Health of Massachusetts were to be found in the hands of all interested in sanitary science.

ART. II.—*The Pathological Significance of Nematode Hæmatozoa.* By T. R. LEWIS, M. B. 8vo, pp. 54. Calcutta: Government Printing-Office, 1874.

THE author of this small volume occupies a position in the British military service in India where he has had opportunities of investigating the occurrence of minute worms in the blood of pariah dogs, and has had some experience in their occurrence in the human species. He enters into an elaborate description of the nematode as it occurs in the dog, showing the points of difference between it and the *filaria sanguinis hominis.* A few fine plates accompany the description.

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[1] "Cholera," etc., Hine. [2] Idem.

In dogs they are found to inhabit the œsophagus, aorta, and pulmonary vessels. They are found to exist in their larval condition in the *walls* of the œsophagus and vessels, giving rise to tumors in their coats. They are doubtless primarily found in the œsophagus, but, after development into *filaria* of not more than one-twelfth of an inch long, they migrate into the blood-vessels, in the fluid of which they grow to a length of from two to six inches. In the heart and pulmonary vessels they are sometimes found in numbers sufficient to occasion coagulation of the blood around the mass of hæmatozoa which obstructs the circulation.

The salient morbid phenomena associated with the presence of nematode hæmatozoa in man are described as conditions referable to the escape of the nutritive fluids—the blood or chyle, or both—out of their proper channels, or to an obstruction to their flow.

As far as observation has extended the exudation has been found to take place in two general ways, viz.: either into some excretory duct, such as the ureter—constituting the affection known as chyluria, or milky urine;[1] or into the cellular tissues, constituting the condition recognized as elephantiasis.

In a few cases of chyluria and elephantiasis examined by Mr. Lewis, *filariæ* were detected in the blood—a sufficient number, according to his opinion, to establish the etiology of these affections. It is also stated in a foot-note, on page 48, that Dr. Lonsin found a microscopic nematode in an Egyptian Jew who was affected with hæmaturia of Egypt, closely related to the *filaria sanguinis hominis;* and Dr. Wucherer discovered a nematode in the urine of a person suffering from hæmaturia of Brazil.

These investigations are interesting as they are novel, and should future inquiry establish the pathological connection claimed between the existence of *filariæ* in the blood and some of those affections the cause of which has hitherto been obscure, an important point will have been gained. We have given but a mere outline of the author's views.

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[1] *Vide* Fayrer, "Clinical and Pathological Observations in India," London, 1873. Also Palmer, in *Indian Medical Gazette*, vol. viii., 1873.

ART. III.—*Researches into the Antagonism of Medicines; being the Report of the Edinburgh Committee of the British Medical Association.* By JOHN HUGHES BENNETT, M. D., F. R. S. E., etc. 12mo, pp. 100. London: J. & A. Churchill, 1875.

DR. BENNETT and his associates have performed a good work in bringing before the profession a more intimate knowledge of the action of medicines. The report before us is an outgrowth of the suggestion of the late Dr. Hughes Bennett, at the annual meeting of the British Medical Association of 1866, resulting in the appointment of a committee to report on the action of mercury. At the annual meeting of the Association in 1869, Dr. Bennett was again appointed to form a committee to report on the antagonism of medicines. After several years of labor the report is now before us, giving twelve classes of experiments upon rabbits, dogs, cats, rats, and mice, with the following in brief as some of the results: 1. Chloral hydrate mitigates the effect of strychnine, so that life may be saved by chloral after a fatal dose of strychnia, but strychnia is less likely to save life after a fatal dose of chloral. 2. The antagonism between sulphate of atropia and Calabar-bean is slight. 3. The effects of Calabar-bean are considerably modified by chloral, if the latter substance is given before the former. 4. Hydrochlorate and meconate of morphia in no way antagonize extract of Calabar-bean. 5. Sulphate of atropia is antagonistic to meconate of morphia within a limited area, but the limit is too narrow for practical service. 6. Tea, coffee, theine, caffeine, and guaranine, are somewhat antagonistic to meconate of morphia. 7. Strychnia and Calabar-bean modified the action of each other, but neither saved life after a fatal dose from the other. 8. Bromal hydrate and atropine are antagonistic, but, "while atropia may save life after a fatal dose of bromal chlorate, the converse apparently does not hold good."

The report is very interesting, and prepared only after much care and patience on the part of Dr. Bennett. The labor attending the performance of 619 experiments can hardly be appreciated by any but those who have investigated in the same channel. It is to be hoped that the Association may continue to make appropriations for prosecuting a work so nobly commenced. The little volume is a handsome one.

Art. IV.—*Spinal Paralysis of the Adult; Acute, Subacute, and Chronic.* (*Inflammation of the Motor Tract of the Spinal Cord.*) By E. C. Seguin, M. D., etc. Pp. 39.
Infantile Spinal Paralysis. A Clinical Lecture. By E. C. Seguin, M. D., etc. Pp. 18. In one volume 8vo. New York: D. Appleton & Co., 1875.

The former of these articles was read before the New York Academy of Medicine last November; the latter was delivered at the College of Physicians and Surgeons in 1873.

In these very interesting articles the author shows the similarity that exists between the two affections named therein, in symptomatology, pathological anatomy, etiology, and prognosis. It is also shown that "spinal paralysis in the adult is to be classed with acute ascending paralysis, progressive muscular atrophy, and labio-glosso-laryngeal paralysis. In spinal paralysis, in both infants and adults, the lesion found is granular degeneration of the ganglion-cells of the anterior horns of the spinal cord. In progressive muscular atrophy the same condition obtains in those parts giving origin to the nerves supplying the wasted muscles; and in labio-glosso-laryngeal palsy those ganglion-cells in the floor of the medulla oblongata which constitute the nuclei of the origin of the hypoglossal nerves are degenerated.

The author, in absence of proof to the contrary, assumes that the degeneration of the nerve-cells in spinal paralysis takes its origin in inflammation; and as the disease affects the anterior horns below the decussation of the pyramids, and the posterior motor tract above the decussation, he chooses the name "inflammation of the motor tract of the spinal cord."

In respect to the influence of age in the etiology of the affections, the author's tables show the occurrence in no instance between the ages of seven and eighteen, leaving a gap of eleven years of immunity. As a matter of some interest we might state that, of the cases which have come under our observation, one occurred at the age of thirteen. The patient so far recovered as to be able to walk with a cane.

The author's descriptions are exceedingly clear and interesting, and the volume is presented by the publishers in handsome style.

ART. V.—*The Diseases of the Heart and Aorta.* By THOMAS HAYDEN, Professor of Anatomy and Physiology in the Catholic University of Ireland, etc. In Two Parts. 8vo, pp. xii.–1232. Philadelphia: Lindsay & Blakiston, 1875.

THIS is quite an elaborate work, being intended for an exhaustive treatise upon the affections of which it treats.

So far as may have been the author's design in bringing before the profession a comprehensive treatise, commensurate with the existing state of science, we may say he has succeeded very well. It is to a certain extent a compilation, yet much enriched by the extensive experience and investigations of the author.

The books are divided into ten chapters, the first being upon the "Anatomy and Physiology of the Heart." In Chapter X., "Diseases of the Aorta," thoracic aneurism is very well treated. The whole work indicates a thorough, familiarity, on the part of the author, with his subject. In the copious references we notice but slight recognition of American authorities in comparison with English, although, in the chapter on "Neuroses," due notice is taken of the condition described by Da Costa as "irritable heart." In respect to some of the author's special views we will simply state that he recognizes the influence of strain and over-exertion in the causation of organic heart-disease, yet he evidently, at the time of writing, had not become acquainted with Da Costa's investigations[1] of those factors.

The work is characterized by a little diffuseness of style, and is loaded down with a report of cases (150 in number) which, although illustrative, and in themselves interesting enough, will scarcely be read by the busy American. The eighty-one illustrations are very good.

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[1] *Vide* "The Toner Lectures." Lecture iii., "Strain and Over-Action of the Heart."

Art. VI.—*Importancia Clínica de la Temperatura en la Fiebre Tifoidea.* Tesis de J. A. Ledesma. (Clinical Importance of the Temperature in Typhoid Fever.) 111 pp., 8vo, with Chromo-lithographic Tables. Buenos Aires: 1875.

Commencing with the general characters of the disease, the author examines the general principles which govern it, quoting largely from Wunderlich and Jaccoud. The different periods are then studied more particularly, as well as the influences which modify the febrile cycles. After investigating the influence exerted by the temperature on the organism and its functions, a parallel is drawn between the course of the temperature and the other signs of the disease. Finally, the indications afforded by the temperature are considered as regarding the diagnosis, prognosis, and treatment.

The author has renounced the use of baths, and agrees with Jaccoud in replacing cold water with lotions of aromatic vinegar, which has the advantage of procuring a more marked and enduring refrigeration, more actively exciting the cutaneous hæmatosis, and surrounding the patient with a fragrant atmosphere which reanimates him and insures the purity of the air. This method of treatment is completed by following out the other indications necessary to combat the consequences of excessive calorification. Sulphate of quinine is regarded as a coadjuvant which is preferable to digitalis.

The work is illustrated by thirty-two lithographic tables, sixteen of which are chromo-lithographs, showing the relative course of the temperature, pulse, and respiration.

Art. VII.—*The Gentle Treatment of Spinal Curvature.* By Heather Bigg. 16mo, pp. xii.-64. London: J. &. A. Churchill, 1875.

The author is an advocate of the "gentle" method of treating deformities of the spine. In a very pleasant way he describes his appliances, with methods of application, and gives an account of the principles of treatment, with former methods. The author claims to have put elastic traction into use before either Mr. Barwell, or Dr. Prince, of Jacksonville, Ill., had published the same plan.

Art. VIII.—*The Treatment of Nervous Diseases by Electricity: A Review of the Present Extent of Electrical Treatment, with Indications for its Employment.* By Dr. Friedrich Fieber. Translated from the German by G. M. Schweig, M. D. 12mo, pp. 64. New York: G. P. Putnam's Sons, 1874.

This little work is a concise, running account of the indications for the use of electricity. It is quite suggestive, although the author is rather more sanguine of success in certain cases than our experience will warrant. An author in recommending electrical treatment should always state whether faradic or galvanic is meant, and be precise as to the location of the electrodes. The book will repay perusal.

Books and Pamphlets Received.—Transactions of the Medical Association of the State of Alabama. Twenty-eighth Session. 1875.

Programme of General and Special Instruction in Physiology, Zoölogy, Comparative Anatomy, and Economic Entomology, with Rules of Health. Cornell University, Ithaca, N. Y., 1875–'76.

Anatomical Rooms: Plan for their Construction, Ventilation, and Hygienic Management. By H. Lenox Hodge, M. D., Demonstrator of Anatomy, University of Pennsylvania. Reprinted from *Virginia Medical Monthly*, October, 1875.

Uronology and its Practical Applications: A Guide to the Examination of Urine, etc. By George M. Kober, M. D., etc. Reprinted from the *Richmond and Louisville Medical Journal.*

Address before the Medical Association of the State of Alabama. By Dr. J. S. Weatherly, President. Extracted from the State Transactions for 1875.

Annual Oration before the Medical and Chirurgical Faculty of Maryland, April 14, 1875. Contribution to the Medical History and Physical Geography of Maryland. By Joseph M. Toner, M. D. Reprinted from "The Transactions of the Medical and Chirurgical Faculty of Maryland," 1875. Baltimore: 1875.

A Statement of the Relations of the Faculty of Medicine and Surgery in the University of Michigan to Homœopathy. Detroit: *Tribune* Printing Company, 1875.

Fracture of the Inferior Maxillary Bone. By Joseph T. Montgomery, M. D., of Sacramento, Cal. From "Transactions of the State Medical Society for 1875."

Vision: Its Optical Defects, and the Adaptation of Spectacles. Embracing, first, Physical Optics; second, Physiological Optics; third, Errors of Refraction and Defects of Accommodation, or Optical Defects of the Eye. With Seventy-four Illustrations on Wood, and Selections from the Test-types of Jaeger and Snellen. By C. S. Tenner, M. D. Philadelphia: Lindsay & Blakiston, 1875.

Transactions of the College of Physicians of Philadelphia. Third Series. Volume the First. Philadelphia: Printed for the College, 1875.

On Poisons in Relation to Medical Jurisprudence and Medicine. By Alfred Swaine Taylor, M. D., F. R. S., Fellow of the Royal College of Physicians and Lecturer on Medical Jurisprudence, Guy's Hospital. Third American, from the third and thoroughly revised English edition. With 104 Illustrations. Philadelphia: Henry C. Lea, 1875.

A Practical Treatise on Diseases of the Eye. By Robert Brudenell Carter, F. R. C. S., Ophthalmic Surgeon to St. George's Hospital, Surgeon to the Royal South London Ophthalmic Hospital, Hunterian Professor of Surgery and Pathology to the Royal College of Surgeons of England. With numerous Illustrations. London: Macmillan & Co., 1875.

On Altitude and Climate in the Treatment of Pulmonary Phthisis. By W. Gleitsmann, M. D. Reprinted from "Transactions of the Medical and Chirurgical Faculty of Maryland," April, 1875.

Climate of the United States, considered with Reference to Pneumonia and Consumption. By W. D. Bizzell, M. D., Mobile, Ala. Reprinted from "Transactions of State Medical Association."

Tinnitus Aurium; or, Noises in the Ears. Second edition, with Cases. By Lawrence Turnbull, Ph. G., M. D., Physician to the Department of Diseases of the Eye and Ear of Howard Hospital, Philadelphia. Reprinted from *Philadelphia Medical Times*, June and October, 1874. Philadelphia. Pp. 39.

Tinnitus Aurium. A Consideration of the Causes upon which it depends, and an Attempt to explain its Production in Accordance with Physical Principles. By Samuel Theobald, M. D., Surgeon to the Baltimore Charity Eye and Ear Dispensary. Reprinted from "Transactions of the Medical and Chirurgical Faculty of Maryland," April, 1875. Baltimore: Innes & Co., 1875.

On the Relation between Diabetes and Food, and its Application to the Treatment of the Disease. By Arthur Scott Donkin, M. D., Edinburgh,

M. D., Durham, Member of the Clinical Society of London, late Lecturer on Forensic Medicine and Examiner in Medicine in the University of Durham, etc. New York: G. P. Putnam's Sons, 1875.

University of Michigan, Ann Arbor. Department of Medicine and Surgery. Annual Announcement, 1875–'76.

Twenty-third Annual Announcement, Medical Department, University of Vermont, 1876.

Lectures on Diseases of the Nervous System. By Jerome K. Baudrey, M. D., Professor of Psychological Medicine and Diseases of the Nervous System and of Medical Jurisprudence in the Missouri Medical College, etc. Reported by V. Biart, M. D. Revised and edited by the Author. Philadelphia: J. B. Lippincott & Co., 1876.

Scarlatina Statistics of the United States. By Thomas C. Minor, M. D. Cincinnati: Robert Clark & Co., 1875. Pp. 55.

Address to the Medical Profession of the State of Georgia, with the Proceedings of the First Meeting of the State Board of Health, held in Atlanta, June 9, 1875.

Treatment of Paralyzed Muscles by Elastic Relaxation. By John P. Van Bibber, M. D. Reprinted from "Transactions of the Medical and Chirurgical Society of Maryland."

A Lecture delivered at the Opening of the School for Nurses in Charity Hospital, August 10, 1875, by Prof. Joseph W. Howe, M. D., Visiting Surgeon to the Hospital, on the Care of Patients in the Surgical Wards, and the Best Means of saving Life in Certain Cases of Emergency. Reported by Dr. Carpenter.

Statistics of Mortality from Pulmonary Phthisis in the United States and Europe. Compiled from Official Health Reports, and from Data obtained from Life Insurance Companies. By William Gleitsmann, M. D. Baltimore: Turnbull Brothers, 1875.

Cholera Epidemic of 1873 in the United States. The Introduction of Epidemic Cholera through the Agency of the Mercantile Marine: Suggestions of Measures of Prevention. By John M. Woodworth, M. D., Supervising Surgeon U. S. Marine Hospital Service. Washington: Government Printing-Office. Pp. 1025.

Reference and Dose Book. Vest-Pocket Anatomist. By C. Henri Leonard, A. M., M. D., Detroit.

A Rare Form of Monstrosity. Two Cases of apparently true Hermaphroditism. By W. L. Richardson, M. D., Visiting Physician to the Boston Lying-in Hospital, and Thomas Dwight, M. D., Professor of Anatomy at the Medical School of Maine. Reprinted from *Boston Medical and Surgical Journal*, September, 1875.

Reports on the Progress of Medicine.

SURGERY.

Prepared by Samuel B. Ward, M. D.

Congenital Dislocation of the Knee-Joint.—Drs. W. L. Richardson and C. B. Porter report two cases which were uncomplicated by any monstrosity, paralysis, or alteration of the articular surfaces, such as are usually seen in this peculiar form of congenital dislocation.

In the first case, the labor was in every respect a normal one. Soon after birth, the child lying on her back, the left leg was noticed to take a vertical position, the inner malleolus facing toward the umbilicus, and the foot being strongly rotated outward. The femur was apparently well formed, as were also the tibia and fibula. The inner lateral and crucial ligaments were greatly stretched, and probably somewhat undeveloped. The tibia was dislocated forward and outward, its head resting well up on the space between the condyles. The fibula had evidently followed the line of the dislocation, but in a much less degree. The whole appearance was that of a well-marked dislocation of both bones forward, with an outward rotation. Above and below the knee-joint were noticed two distinct furrows in the skin, which was itself considerably reddened in these furrows. There were no signs of any present or past inflammatory action about the joint. There was every evidence that the dislocation had occurred *in utero*. Bringing the bones into proper position, and applying a bandage to retain them so, was all that was needed in the way of treatment. At the end of two months, the child was carefully examined. The left leg was to all appearances like the other in length, size, and shape, nor could any difference be detected between the possible movements of the two knee-joints.

In the second case, first seen by the reporter six days after birth, the tibia and fibula were found to be dislocated forward upon the femur. The leg was in such an extreme state of tension that the anterior surfaces of the leg and thigh touched each other, the sole of the foot looking directly toward the face of the child, the toes pointing backward and the heel forward. The quadriceps extensor cruris seemed to be in the same condition as is seen in those muscles which produce the more common club-foot deformity. The outlines of the condyles of the femur and of the heads of the tibia and fibula could be distinctly recognized, but the patella was with difficulty made out. There was no evidence of inflammation, present or past, and the dislocation undoubtedly occurred *in utero*.

By gentle, firm, and constant traction, the leg could be brought down into a straight line with the thigh without giving the child any pain. When released it would immediately, and almost with a jerk, return to its abnormal position. Any attempt made to flex the leg caused evident pain, on account of the strong contraction of the extensor muscles. A modified Desault's apparatus for fractured leg was applied, which, being removed a number of times, was worn for six weeks. A splint, bent at an obtuse angle, was then used for two weeks, and afterward replaced for one bent at a right angle. After this had been worn for a few weeks, the angle was frequently varied, the splint being changed every few days, so as to prevent any anchylosis. Occasionally the child was allowed to go without any thing on the leg, so as to develop the muscles. A careful examination now shows no apparent difference between the two legs, and the child can flex the leg naturally, and has lost the power to extend it abnormally, although at times the bones seem to glide a little upon each other, owing to the continued relaxation of the ligaments.

So meagre is the literature of this subject that these two cases form an interesting addition to it, especially as they proved so amenable to treatment.—*Boston Medical and Surgical Journal*, September 16, 1875.

On Ligature of a Main Artery, to arrest Acute Traumatic Inflammation.—Mr. C. F. Maunder's third lecture, in the recent Lettsomian course on the "Surgery of the Arteries," is devoted to this subject. The theory on which this treatment is based is, that after severe injuries, the inflammation, in some cases, far exceeds, in grade, the amount which is necessary for, or compatible with, the reparative process, and that the usual antiphlogistic remedies fail to arrest it. If vigorous measures be not adopted, either prolonged and exhausting suppuration, or extensive gangrene results. In such cases Mr. Maunder, in 1866, recommended diminishing the supply of blood to the part by the ligature of the main vessel of the extremity involved, and the practice was followed by the happiest results.

The following facts and conclusions are quoted from his lecture:

That ligature of the superficial femoral artery has arrested acute inflammation consequent on wound of the knee-joint.

That ligature of a main artery will quickly diminish profuse suppuration, and prevent death by exhaustion.

That, while it arrests profuse suppuration, it will, by allowing the patient to gain strength, afford an opportunity for amputation at a future time.

That gangrene and secondary hæmorrhage, as the result of ligature, should not be anticipated in the healthy subject.

That the dread of these has arisen from our knowledge of the consequences of the ligature in instances of known diseased vessels—aneurism, for example.

That a slough on the heel, caused by the pressure of a splint, was quickly detached, and the wound soon closed, although the superficial femoral had been tied a few days previously.

That symptoms of inflamed bone ("starting-pains") quickly disappeared.

That the arterial tension of the rest of the body will be increased beneficially by the ligature.

In conclusion, the lecturer stated that he long supposed that he was the first to suggest this method of treatment; but research into the literature of the subject had shown him that it was practised in America long before he was born. It was done for the first time by Henry U. Onderdonck, M. D., in 1813, and afterward by David L. Rogers and Valentine Mott, of New York City, of which facts Mr. Maunder was, in 1866, entirely ignorant.—*London Lancet.*

An Antiphlogistic Method of dressing Operation-Wounds.—Mr. Jonathan Hutchinson is induced to publish this, from the unusually satisfactory results which have followed its use.

No blood should be left in the wound, nor should there be any danger of bleeding. To this end, use all the silk ligatures that are necessary, and leave the wound open an hour or two, rather than close it while there is still oozing. A drainage-tube left in the most dependent portion of the wound is a safe precaution. In the case of removal of the breast, make a counter-opening at the most dependent part, and insert a drainage-tube, to be removed on the third day. Coapt the edges of the wound carefully with numerous fine stitches. Great care should be taken that none of the latter are tight, and they should all be taken out on the third or fourth day. After the sutures, narrow strips of plaster should be applied, and remain on for five or six days. The essential feature in the plan is to keep the parts cool by the systematic application of a lead-and-spirit lotion. The lotion consists of half an ounce of liquor plumbi, and an ounce and a half of spirit, to the pint of water. After the wound has been sewed up as above directed, apply, over the plasters, a lint compress wet with the lotion, and over this a mass of cotton-wool, which is kept in place pretty tightly by a flannel bandage. This is applied to prevent oozing, and should be taken quite away in from six to twelve hours, when an ample fold of lint, wet with the lotion, should be applied over the wound and surrounding skin, and the nurse should have emphatic directions to remoisten it every quarter or half hour, according to the rate at which it dries. The skin ought to become whitened by deposit of lead. No bandage or other dressing is necessary, and the lotion should be continued without intermission until the wound is perfectly sound—a week, or two weeks, as the case may be.

If one is obliged to leave a portion of the wound open, the lotion may still be used, and is even more necessary. Mr. Hutchinson feels confident that, in many cases of open wounds so treated, diffuse inflammation has been prevented.—*London Lancet.*

Neuralgia treated by Nerve-Stretching.—Mr. Calender, of St. Bartholomew's Hospital, has recently delivered a clinical lecture on this subject, in which, after calling attention to the frequency of a painful condition of the nerves after amputation and other injuries, he says that several conditions suggest themselves as possible causes of this irritation: 1. The nerve may have been liable to strain in extending the limb. 2. The tissues about the nerve may have become thickened, and in this way the nerve become so fixed to adjacent structures as to lose that freedom, that independence, which in the natural condition of parts insures a certain latitude of gliding to all nerves about joints, especially those which are moved in flexion and extension. 3. The nerves in a stump may also be irritated by having contracted adhesions to muscles, and thus become liable to be pulled—perhaps we should say twitched—in the movements of the muscles. 4. Bands of adhesion may form across nerves, and in the contraction of these, nerves may be compressed and so be irritated. 5. A nerve may for some distance be surrounded by dense, contracting tissue, which may compress it and so give rise to irritation of its fibres. 6. There may be inflammation of the nerve itself, or of its immediate covering; and observations have been recorded, showing that inflammation of the spinal cord has followed irritation of peripheral nerves. The irritation of one given peripheral nerve may be carried to the spinal cord and by reflex action produce symptoms in other nerves more or less remote. When this painful condition is severe and long-continued, it gives rise to important changes in the nutrition of the parts supplied by the nerve or nerves involved.

In treating these cases, it is important to determine carefully the extent of the affection—to decide whether you are dealing with one nerve only and its distal ramifications; or whether you have to remedy a mischief which, beginning, it is true, in the irritation of a single nerve, has involved a wider area by extending toward, and being reflected from, a nerve-centre; whether, this being the case, this extension is limited to nerves closely allied in origin; or, lastly, whether it involves nerves far remote from these. In the first and simplest case, such measures as rest of the part and the local use of sedatives, or freeing the nerves from pressure, or from local irritation, will suffice. When the nerve-centres have become involved, and especially if pain is experienced in remote parts, even removal of a portion of the nerve and reamputation have often failed to afford relief.

When a single nerve is primarily involved, even though others in the neighborhood are secondarily affected, stretching the nerve frequently eases the patient. The operation of cutting down upon a nerve, freeing two or three inches of it from its attachments, and stretching it, is almost free from danger. There is no reason to apprehend any trouble on the part of the nerve-centre, and the functions of the peripheral portion of the nerve often remain intact. It is probable that the stretching is of use by numbing the nerve for a short time, thus breaking the transit of the abnormal impressions conveyed by its fibres, and in the interval thus gained the centres may reassume their natural control. It is quite possible also that the relief is sometimes due to the breaking up of adhesions.

In one case in which Mr. Langstaff was obliged to reamputate the arm, he took the precaution during the operation to draw out each nerve half an inch before dividing it, and the neuralgia was cured.

As to the permanency of the cure by this operation, time enough has not yet elapsed since it was first put into practice to enable us to make any positive statement. In one case fourteen months have elapsed without any return of the neuralgia.—*London Lancet.*

Translations.

On Atresia of the External Auditory Canal.—At a meeting of the Vienna Medical Society, Prof. Gruber (*Med.-chirurg. Centralblatt*, No. 8, 1875) presented two patients, a girl eleven years and a woman twenty-eight years of age, both of whom were affected with atresia of the external auditory canal; in the younger patient this condition existed in both ears, in the older only in the right ear, though the diameter of the left external canal was already so contracted as only to admit a probe three-quarters of a millimetre in diameter. In both individuals the occlusion had resulted from neglect of proper care and treatment during chronic inflammation, and in both the hearing-power was diminished in a marked degree.

Atresia is either congenital or acquired. The congenital variety is rarely found without the coexistence of malformations and defective development. In such cases, either portions of the external ear alone are wanting, or their development has been rudimentary; or, what is worse, this malformation is combined with defective formation of the deeper structures, even of the labyrinth, in which case deafness of the affected ear must be the result, while, when only sections of the external and middle ear are wanting, a considerable degree of hearing-power can exist even with atresia of the auditory canal, provided any of the structures of the labyrinth are *intact*. Gruber has first demonstrated that, as in case of deformed auricle, which is occasionally attached in an anomalous position at the side of the head when there is defective development of the external ear, the situation of the deeper structures is likewise to be sought in a different location before a positive decision is given concerning their complete absence. This relation should be borne in mind the more when the question arises of forming an auricular canal by operation. The author further observed that, in the new-born, a positive opinion concerning the future hearing of the child should never be given until the child has attained an age when the hearing-power can be tested with hope of success. When such a child has attained the age in which children usually react to external irritation of the auditory nerve, and it does not react to tones and sounds, there is evidence that the deeper structures are defective, and then the prognosis is unfavorable. However, it must be remembered that in some children the hearing-power commences at a late period. Gruber likewise recommends that the surgeon should be guarded in performing the operation at the desire of the parents, for it is very possible that it might be performed without any hope of success; and, when at a later period the indication for operation might present itself, the rules which he has laid down should be borne in mind. In regard to the acquired forms, he says that usually they are the result of badly-treated inflammations, or of diseases whose effect is ulceration or cicatricial formation. Thus, Gruber once operated in a case of atresia occurring after lupus, another after epithelial cancer. Though the occlusion may occur at any portion of the canal, the inner half is more often affected than the outer. Owing to the peculiar construction of the external canal in the new-born and in the young child, when the osseous portion of the canal is not yet fully formed, adhesions may easily take place between the already closely approximated walls of the canal; and this is also the reason why in children during the first years of life the walls grow together, a fact which has been sufficiently proved by statistics. In speaking of the pathological changes which are presented in such adhesions of the external canal, he called attention to the fact that the occlusion rarely takes place by means of the soft structures alone. As a rule, hyperostosis on the bony walls occurs during the process of chronic inflammations, which finally occludes the whole canal. An examination then reveals the external canal closed by bony structures covered by cutis. In the two cases presented, this condition prevailed once on the right side and once on the left; while in the right ear of the younger patient the occlusion was made up of soft cicatricial tissue. Prof. Gruber believed that the two cases were proper subjects for operation, which he intended to perform by means of galvano-cautery. E. F.

Presence of Micrococcus and Bacteria in the Walls of Hospital Wards.—The analyses of the air, and other experiments made by Pasteur, for the purpose of investigating the doctrine of spontaneous generation, have demonstrated that the germs of inferior organisms—micrococci, bacteriæ, etc.—are everywhere present in the air. In a hospital the air contains a greater number of these elements, and in addition certain special bodies, such as pus-globules, spores of epiphytic parasites, which emanate from diseased organisms, and, owing to their volatility after desiccation, are susceptible of hovering in the atmosphere. In 1865, M. Broca discovered pus-globules in the liquid expressed from the sponge with which the walls of one of the wards of the St. Antonio Hospital had been washed. In 1860, M. Chalvet was inclined to attribute the blue coloration which is often observed in the vicinity of wounds to the presence of microscopic algæ of the species *Palmella*. In 1861, Dr. Eiselt, of Prague, placed an instrument, analogous to the aëroscope of Pouchet, between two beds, in a ward occupied by thirty-three children with purulent ophthalmia; the apparatus consisted of a glass plate coated with glycerine, and pus-globules were distinctly seen. To the above and analogous facts, which are recorded in the dissertation of Dr. Deville (Strasbourg, 1860), are to be added the recent experiments of Dr. Nepven, of Paris: One square metre of wall in the surgical ward of La Pitié having been washed after neglect for two years, the liquid expressed from the sponge (about thirty grammes) was examined immediately afterward. It was black, and showed micrococcus in large amount, several microbacteriæ, epithelial cells in small number, several pus-globules, several red globules, and, lastly, irregular, blackish masses and ovoid bodies of unknown nature. The experiment was conducted with all possible precautions. The above facts furnish an indication concerning the constituent elements of the so-called nosocomial poison. We can comprehend how the air of hospitals may contain the germs of a great number of maladies, and easily become the true centre of infection. In private practice the same conditions may obtain, though in a minor degree, especially in winter, from the prolonged confinement of patients in rooms with insufficient ventilation.—*Revue méd. de l'Est*, *Revue de Thérapeut.*, No. 23, 1874. E. F.

Bromide of Potassium as a Caustic and Anæsthetic in Ulcerated Malignant Tumors.—At a recent meeting of the Société de Méd. et Chir. at Bordeaux, M. Peyraud reported that, having had to treat in one of his patients a voluminous cancroid of the face, the extirpation of which was contraindicated, and which gave rise to intense pain, the idea occurred to him of applying finely-pulverized bromide of potassium to the ulcerated surfaces. After the first dressing the pains moderated and the fungous portions seemed to undergo retraction. Encouraged by this result, the author on the same day made a second application with equal benefit. This dressing was continued twice daily for twenty-eight days, at the end of which period the tumor had so diminished in volume that it did not extend beyond its implantation. In this case, the author attributes the favorable influence of the bromide to a double action. First, the nervous ramifications when in contact with the remedy are rendered insensible, and hence the pain diminishes. Then, by virtue of its action on the vaso-motor system, the bromide causes a permanent contraction of the vessels of the tumor, whose volume therefore becomes reduced. At the same time a mild caustic action of the remedy mortifies the superficial layers, which must be detached at each dressing by cleansing the ulcerated surface with fresh water. After this preliminary operation it is necessary merely to sprinkle the tumor with the powder and to cover it with a pledget of lint. —*Rev. de Thérap. Méd.-Chir.*, October, 1874. E. F.

Herpes Zoster of the Shoulder.—Dr. Giné relates the case of a female with a zona situated in the dorsal region, on a level with the seventh dorsal vertebra, extending toward the right side. In addition to the acute pruritus of the surface, the patient complained of deep pain, which the doctor found by pressure to be situated two centimetres below and to the outer side of the eruption. The case was thought to be a neuralgia of the cutaneous branch of the seventh dorsal pair, causing an eruption of zona corresponding to the terminal extremities of this nerve. After an hypodermic injection of two centigrammes of morphine in one gramme of water there was an immediate cessation of the deep pain and the itching, followed by a rapid resolution of the eruption. After three or four days the eruption entirely disappeared, leaving but a slight desquamation.

Dr. Giné thinks that *zona dorsalis* should be added to the varieties already enumerated by Hebra; that the most rational treatment is to apply the remedy directly to the seat of pain, and that the success obtained in this case should lead to the generalization of this method of treatment.—*Independencia Med. de Barcelona*, and *La France Méd.*, December, 1875.
G. R. C.

On the State of the Pupil during Surgical Anæsthesia from Chloroform.—In the Société de Biologie de Paris, M. Bodin remarked that in numerous cases of anæsthesia from chloroform he had observed a correspondence between the condition of the pupil and the state of insensibility, which might serve as a guide in the administration of the anæsthetic. With M. Cogne he has made experiments on animals in order to verify the results of his clinical observations. His observations were made—1. During the administration of chloroform; 2. When vomiting supervened; 3. After intra-venous injection of chloral.

1. When chloroform is administered, the pupil, which dur-

ing the stage of excitement is insensible to the action of light, dilates, then gradually contracts when anæsthesia is accomplished; and, when the latter is complete, the pupil is immobile and contracted, not responding to any excitation. 2. During the administration of chloroform, vomiting sometimes takes place; if the subjects are completely anæsthetized, the contracted pupils dilate widely during every effort of vomiting. 3. Following the intra-venous injection of chloral, Bodin and Cogne have observed the same phenomena. The only difference between chloral and chloroform is, that with chloral the pupil is contracted and punctiform, while with chloroform the contraction is less marked.—*Lyon Médicale*, No. 8, 1875. E. F.

Miscellany.

Appointments, Honors, etc.—G. F. Markoe, of Boston, was elected President of the American Pharmaceutical Society, and John M. Maisch, of Philadelphia, Secretary, at the recent meeting in Boston. Dr. Beaubien has resigned the chair of Practice of Medicine in Victoria Medical College, Montreal, and Dr. J. P. Rottot has been appointed in his place. Dr. Steeves has been appointed Medical Superintendent of the New Brunswick Provincial Lunatic Asylum. The late John E. Spencer, M. D., of Morristown, N. J., by his will, bequeathed to Jefferson College the sum of $1,000, to be added to the building-fund of the college.

Sir Duncan Gibb has resigned his office of Physician to Westminster Hospital, on account of ill-health. Dr. Smith-Shand has been appointed to the chair of Medicine in the University of Aberdeen, in the place of Dr. Macrobin, resigned. Sir James Alderson, Knight, M. D., and Arthur Farre, M. D., have been appointed Physicians Extraordinary to Queen Victoria. Sir Robert Christison has been elected President of the British Association for the year 1876. Dr. Moritz Schiff, of Florence, has received, by unanimous vote of the Turin Academy, the Riberi Prize of about $4,000, for his "Contribuzione alla Fisiologia Patologica dell Midollo Spinale." Dr. Dieulafoy has been rewarded by the Academy of Sciences with the "Prix Monthyon," for his interesting work on "L'Aspiration des Liquides morbides," and for the service rendered by his pneumatic aspirator to medicine and surgery. Dr. James Bell Pettigrew, F. R. S., has been appointed to the chair of Medicine in the University of St. Andrews, Edinburgh, made vacant by the death of Dr. Oswald Home Bell. Dr. Liebreich, of Berlin, has received a diploma of honor from the Vienna Exhibition for his discovery of the properties of chloral.

The Late Dr. Kammerer.—At a regular meeting of the Medical Board of St. Francis's Hospital, the following preamble and resolutions were unanimously adopted:

Whereas, our respected friend and colleague, Dr. Joseph Kammerer, has been removed from us by death: therefore—

Resolved, That we, the Medical Board of St. Francis's Hospital, bear testimony to his genial disposition, his untiring devotion to his patients, and to the interests of the profession at large.

Resolved, That in the death of Dr. Joseph Kammerer the medical profession of New York has sustained a severe loss, and St. Francis's Hospital a valued friend and adviser.

Resolved, That we express our sympathies with the family of our deceased friend, and transmit to them a copy of the foregoing resolutions.

Carl H. Sellman, M. D.,
Joseph W. Howe, M. D.,
Walter R. Gillette, M. D.

The Health of Medical Students.—The *Medical Times and Gazette* devotes an excellent editorial to the subject of health as a qualification for the medical profession, enumerating the various and severe trials to which the health of student and practitioner is subjected from the beginning to the end of a medical career. There is no doubt that many useful lives would be saved, and much disappointment avoided, if young men, before committing themselves to so arduous a profession, were to estimate more carefully their own powers, physical and mental, with a view to their competency to maintain the struggle necessary to insure even a moderate success in medicine. The misfortune is, that men often do not know their own powers until they have been put to the fatal test.

The New Paris Hospital.—The new Hôpital Menilmontant, situated between the Lariboisière and the St.-Antoine, will be opened before the end of the year. The hospital and grounds have cost 9,343,000 francs. It is to contain one hundred and fifty beds, and is built on the separate-partition principle. The wards are spacious, and provided with every modern appliance for the comfort and welfare of patients. Special care has been bestowed on the lying-in department, which is entirely separate from the rest of the hospital.

The Canada Medical Association.—The eighth annual meeting was held in Halifax, August 4th and 5th, Dr. Botsford, President, in the chair. Dr. P. Pineo, U. S. N., represented the American Medical Association, and Dr. John E. Tyler the Massachusetts Medical Society. Dr. E. F. Hodder, of Toronto, was elected President for the ensuing year, and Dr. David, of Montreal, General Secretary. The next meeting will be held in Toronto.

Special Hospitals.—The *Lancet* and *Medical Times and Gazette* are both unsparing in their ridicule of the opening ceremonies of the Central London Throat and Ear Hospital, of which the first stone was laid recently by Madame Adelina Patti. The multiplication of special hospitals is deplored as a crying evil; but it is only a natural result of the cultivation of special branches of medicine and surgery, which is an evil only in its abuse.

International Congress of Physicians.—This meeting was opened September 18th, in Brussels, with much ceremony, the King of the Belgians being present in person. Dr. Vleminckx was elected President, and Dr. Warlomont Secretary-General. The following gentlemen were elected Honorary

Presidents: Mr. Bowman, Drs. Bouillaud, Jaccoud, Larrey, Verneuil, Semmola, Palasciano, Langenbeck, Graefe, Sigmund, and Hebra.

A Sure Cure for the Opium-Habit.—Mr. Grover, the President of the British Pharmaceutical Conference, recently held in Bristol, called attention to the evils resulting from the sale of patent medicines. He mentioned as an instance one medicine advertised and sold as "a sure cure for the opium-habit," and which was found to contain two-grain doses of morphia, to be taken three times a day.

The British Association for the Advancement of Science.—The annual meeting of this Society was held in August and September, in Bristol. Valuable papers were read by Prof. Rolleston, Drs. Brunton and Smith, Dr. F. J. Mount, Prof. Cleland, and Mr. W. J. Cooper. Sir Robert Christison was elected President of the meeting to be held in Glasgow, in September, 1876.

The University of Michigan.—We have read with much regret the lengthy appeal for sympathy put forth by some of the Medical Faculty of this university, in the vain hope of justifying themselves in the endeavor to serve two masters. They have but one course before them that will be indorsed and applauded by the entire profession.

Education in Siberia.—The new Governor-General of Western Siberia recommends the immediate creation of a University of Siberia, to consist of two Faculties, of Law and Medicine. The Russian Government is said to favor the plan, as great difficulty exists in obtaining educated men to fill the public offices. There is an especial lack of physicians, of whom there are not more than fifty in all Siberia.

Corrections.—In Dr. T. R. Varick's article which appeared in the October number of this Journal, the following errors occur: p. 376, twentieth line from top, "eleventh" should read *twenty-first;* p. 377, ninth line from top, insert *between* after the word "shortened;" also, same page, fourteenth line from top, read *hypinosis* instead of "hyperinosis;" p. 379, eighth line from bottom, "hyperinosis" should read *hypinosis.*

Journalistic Notes.—The *Philadelphia Medical Times* has been changed from a weekly to a biweekly journal, and appears now in a tinted cover, and with twenty-four pages instead of sixteen. A new monthly journal, the *West Virginia Medical Student*, is announced to appear early this month, by Dr. James E. Reeves, Wheeling.

New French Prizes.—The Académie de Médecine has recently received two legacies: one of 30,000 francs, by M. Desportes, for the foundation of a prize in therapeutics; and another of 100,000 francs, by M. Demarquay, which will probably be employed in founding an annual prize for the best work in anatomy or pathology.

Sanitary Work in the State of New York.—Dr. A. N. Bell, chairman of the Committee on Hygiene appointed by the Medical Society of the State of New York, has addressed the following circular to the various county medical societies throughout the State, with a view to organization for thorough and systematic sanitary work:

All the county societies have by this time received the "Transactions" of the State Society for 1875, containing the second report on "Defective Drainage as a Cause of Disease in the State of New York." And while there are several county society committees which have not yet completed their reports on that subject, there are others anxious to proceed with the investigation of other subjects. Therefore, that no disposition to labor in this field may be lost, the following classified schedule, comprehending a selection of subjects of inquiry more or less applicable to all, is submitted, with the hope of eliciting many special reports:

Air.—Importance of purity; space; impurities from special causes; analysis; diseases produced by impurities; warming; clothing; ventilation.

Water.—Supply; means of distribution; source; quantity; quality analysis; diseases caused by impurities; purification.

Habitation.—Boundary, district, division, domicile; climatology; physical geography; geology; meteorology; humidity; buildings—new and old; churches, ventilation of; church-yards and church-vaults; school-houses; factories; institutions; prisons—comprehending structure, building-material, organization, care, food and water supply; space; aëration; disposal of slops; house and soil drainage; in short, their relations to the health of their occupants and surroundings in all respects.

Epidemics and Endemics.—Etiology; control; disinfection; destruction; prevention.

Education.—Childhood and youth, provision for; ages; mental and physical; hours in school; home-study; precautions for preserving and protecting health; professional education—physicians, coroners, nurses, midwives.

Drugs and Drug Establishments.—Apothecaries, qualifications of; dispensing medicines; poisons—safeguards; miscellaneous medicine-taking, quackery; "opium-eating;" intemperance; therapeutic value of alcoholic liquors; diseases caused by alcohol; alcoholic impurities as a cause of disease; analysis of alcoholic liquors.

Marine Hygiene.—Air-space; impurities; effects of the impure air of vessels on merchandise; ventilation; food and water; clothing; sanitary relations respectively of sailing and steam vessels; canal-boats; fuel; cargo; stowage in relation to health; antiscorbutics; relative liability of articles of commerce to infection; portability of disease; passenger-vessels; immigrants; commercial diseases; quarantine.

Nuisances.—Means of abatement.

Vital Statistics.—Births, marriages, diseases and deaths; life-expectation in the United States in the aggregate; in regard to whole period of life; life-expectation of the diseased—phthisis, Bright's disease, heart-disease, gout, rheumatism, of any diathesis; registration of diseases.

Attention is invited to to the following resolution adopted by the State society, 1873:

> "That the Secretary be instructed to urge upon the county societies the importance of having Committees on Hygiene in coöperation with the standing Committee on Hygiene of the State society, and that the investigations of said committees in this regard, on the approval of their respective county societies, be forwarded to the Committee on Hygiene of the State society in time to be summarized by that committee in their annual report."

A Supposed Testicle removed from the Vagina of an Hermaphrodite.—Dr. L. Rodgers reports in the *Cincinnati Lancet and Observer*, September number, the case of an unmarried woman, aged thirty-eight, from whose vagina a tumor was removed, which was afterward found to present all the natural characteristic constituents of a testicle. The individual in question was hermaphroditic, and is described as follows: She is of medium size, weighing one hundred and thirty; her voice is quite husky, resembling that of a man; sallow complexion; face is devoid of hair. The mammary glands are absent, while the breast is thickly set with hair. The mons veneris is thickly covered with hair, the labia majora and minora are well developed, and the vaginal orifice is comparatively small, scarcely admitting the introduction of a female catheter.

The clitoris is absent, and occupying its position is a fully-developed penis, excepting the absence of a prepuce. The penis, in the flaccid state, would measure about three inches in length and one in thickness. It is, however, curved downward, there being a web-like membrane extending from the glans to the upper junction of the labia majora, along the under side of the penis. This membrane is about a line in thickness, and arises from the root of the penis like a round cord, and then spreads out like a fan, being attached as above stated.

The patient states that when the penis becomes erect this fan-like membrane draws the penis down, with the glans pointing toward the vaginal orifice. The tumor was attached by a long pedicle to the root of the penis.

The Late Dr. Krackowizer.—At a meeting of the Medical Board of the New York Hospital, held September 24, 1875, the following resolutions were passed:

Whereas, It has pleased an inscrutable Providence to remove from his sphere of usefulness in this world, in the prime of manhood and the fullness of his powers, Dr. Ernest Krackowizer, our late associate in this Board: therefore—

Resolved, That, in the death of Dr. Krackowizer, this hospital has lost one of the ablest counselors and most accomplished surgeons that have ever adorned its staff.

Resolved, That, as his associates, we are called upon to mourn the loss of one whose personal character and exceptional attainments and ability as a surgeon have always commanded our highest admiration and most implicit confidence.

Resolved, That the death of our lamented colleague creates a void in the ranks of our profession which will be long and deeply felt, and that the example of his loyalty to his high calling, his rare attainments, and rich experience, have contributed in an eminent degree to elevate the standard of professional excellence in this community.

Resolved, That a copy of these resolutions be transmitted to the family of the deceased, and be published in the medical journals.

CHARLES E. HACKLEY, M. D., *Secretary.*

The Medical Register.—We learn from a circular issued by Dr. Purdy, editor of the "Medical Register of New York, New Jersey, and Connecticut," that he is preparing as rapidly as possible a revised list of the physicians of this city and Brooklyn, with an index to the entire "Register," the whole of which will be forwarded, free of expense, to all subscribers to the "Register." Dr. Purdy makes the following explanation:

"Messrs. G. P. Putnam's Sons were not responsible for the manufacturing of this volume, the editor having for this year made use of their services only for its publication and sale. The editor regrets that in spite of his care, the type selected, and the quality of the presswork, were not fully up to the standard arranged for. He will, however, make such arrangements as will insure the publication against any inferior work in future issues. He is further convinced that, notwithstanding these slight imperfections, the volume as a whole will be found more valuable and more complete than any previous issue."

Styptic Cotton.—Dr. Thomas G. Morton, in the *Philadelphia Medical Times*, recommends the following method of preparing styptic cotton:

Take a roll of fine jeweler's cotton and thoroughly saturate it in a mixture of Monsel's solution of the subsulphate of iron, diluted with two parts of water; let it stand in the mixture for forty-eight hours; press the liquid out, and dry in a warm room, then pick or card out in fine shreds. It is better to make in small quantities, as there seems to be some change in the cotton when kept for any length of time, it losing its texture and breaking up in a fine powder when handled, thus rendering it unfit for application.

Urticaria.—A French physician, himself a subject of this disease, being seized with severe urticaria, had the happy idea of bathing the feet and legs in hot water well dosed with mustard. Hardly had he dipped his extremities in the bucket, when, vastly to his satisfaction, every discomfort disappeared —*Medical and Surgical Reporter.*

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from September 14 *to October* 13, 1875.

McParlin, T. A., Surgeon.—Assigned to duty as Chief Medical Officer, District of New Mxico. S. O. 182, Department of the Missouri, September 28, 1875.

Webster, Warren, Surgeon.—Assigned to duty at Plattsburg Barracks, N. Y. S. O. 204, Military Division of the Atlantic, October 11, 1875.

Byrne, C. C., Surgeon.—Assigned to duty at Fort Snelling, Minn. S. O. 177, Department of Dakota, September 13, 1875.

Wright, J. P., Surgeon.—When relieved by Surgeon McParlin, assigned to duty at Fort Leavenworth, Kansas. S. O. 182, C. S., Department of the Missouri.

Janeway, J. H., Assistant Surgeon.—To report to the commanding general, Department of the South, for assignment to duty. S. O. 201, A. G. O., October 6, 1875.

Huntington, D. L., Assistant Surgeon.—Assigned to duty as Attending Surgeon at the Soldiers' Home, near Washington, D. C. S. O. 192, A. G. O., September 22, 1875.

Brown, J. M., Assistant Surgeon.—When relieved by Surgeon Webster, assigned to duty as Post-Surgeon, Fort Wood, N. Y. H. S. O. 204, C. S., Military Division of the Atlantic.

Phillips, H. J., Assistant Surgeon.—Granted leave of absence for two months, on surgeon's certificate of disability. S. O. 188, C. S., Military Division of the Atlantic.

Brooke, John, Assistant Surgeon.—Assigned to duty at Raleigh, N. C. S. O. 132, Department of the South, September 13, 1875.

Taylor, M. K., Assistant Surgeon.—Assigned to duty as Post-Surgeon, San Antonio, Texas, to date from September 1, 1875. S. O. 179, C. S., Department of Texas.

O'Reilly, R. M., Assistant Surgeon.—Granted leave of absence for one month. S. O. 187, Military Division of the Atlantic, September 21, 1875.

Wilson, William J., Assistant Surgeon.—Granted leave of absence for one year, with permission to go beyond sea. S. O. 190, A. G. O., September 20, 1875.

Harvey, P. F., Assistant Surgeon.—Granted leave of absence for one month, on surgeon's certificate of disability. S. O. 182, Military Division of the Atlantic, September 13, 1875.

Paulding, H. O., Assistant Surgeon.—Assigned to duty at Fort Ellis, Montana Territory. S. O. 190, Department of Dakota, September 29, 1875.

Taylor, B. D., Assistant Surgeon.—Assigned to duty at Fort Rice, Dakota Territory. S. O. 187, Department of Dakota, September 25, 1875.

Wood, M. W., Assistant Surgeon.—Assigned to duty at Camp Sheridan, Nebraska. S. O. 105, Department of the Platte, September 25, 1875.

Weeds, J. F., Surgeon.—Died at Nashville, Tenn., on October 1, 1875.

Obituary.

Dr. Ernst Krackowizer, whose death occurred in Sing Sing, September 23d, was born in Spital-am-Pyhrn, in the archduchy of Upper Austria, December 3, 1821. He began the study of medicine in Vienna in 1840, receiving his degree five years later. For political reasons he was obliged to leave Austria, and after a period spent in travel he emigrated to the United States in 1850. In 1857 he settled in this city, where his superior abilities and attainments were soon appreciated. He held appointments in the old New York Hospital, the Mount Sinai Hospital, Bellevue Hospital, and the German Dispensary and Hospital, and was a prominent member of the leading medical societies. His death at so early an age is a great loss to the profession, and will be sincerely lamented by a large circle of friends. He was remarkably kind and benevolent, but always in the most unostentatious manner possible. The cause of death was typhoid fever.

Horatio Stone, M. D., well known as a sculptor, whose death occurred in Italy, September 21st, was a practitioner of medicine for nearly thirty years before he devoted his attention to art. He was sixty years of age at the time of his death.

Dr. Toler T. Maunsell, M. B., Dub., M. R. I. A., of Dublin, died August 17th. He was secretary of the Irish Poor-law Medical Officers' Association, and was an ardent and indefatigable advocate of sanitary reform in Ireland.

Dr. Alexander Fleming, of Birmingham, England, died August 21st. He was known abroad chiefly in connection with his researches on the action of aconite.

Dr. George W. Peete, who lost his life by the recent storm and flood at Galveston, was City Physician and Quarantine Officer of that city. He was sixty-three years of age, and was widely known and respected.

The *Lancet* records the death, at the age of forty-six, of Dr. F. W. Headland, well known in this country as the author of an excellent and popular work on the "Action of Medicines." Dr. Headland was senior physician to Charing Cross Hospital, and was highly esteemed by his professional brethren.

The death is announced of Dr. Duchenne de Boulogne, well known through his researches and publications on the medical uses of electricity.

The English journals of October 2d announce the death of Dr. John Hughes Bennett, late Professor of the Institutes of Medicine in the University of Edinburgh. Dr. Bennett was born in 1812, and graduated at Edinburgh in 1837. After several years profitably spent in study in France and Germany, he returned to Edinburgh, where he soon obtained the influential position to which his superior abilities and attainments entitled him. To the profession in this country he is known chiefly through his work on clinical medicine, but in his own country he was recognized as one of the great leaders in the teaching of positive medicine; and, as the *Medical Times and Gazette* says, "his fame and reputation can hardly be sought in printed books or papers, but rather in the minds of the vast number of men whom he has taught and moulded."

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Original Communications.

Art. I.—*On the Poisons which interest the Surgeon. Septicœmia.*[1] By W. H. Van Buren, M. D., Professor of Surgery, etc., Bellevue Hospital Medical College, etc., etc.

Here, then, is a distinctly defined surgical poison capable of producing and accounting for all the effects attributed to bacteria by the "germ theory." Itself a virus, and a product of morbid action, this substance bears a striking analogy, both in chemical constitution and in deadly qualities, to another well-recognized but entirely different septic poison, the venom of serpents—the product, in a certain sense, of healthy physiological action. The description I have given of this septic virus, as we may call it, is based upon the teachings of Robin, Professor of Histology in the Faculty of Medicine of Paris, whose opinions in all questions of chemico-physiology and pathology have endured longer than those of any living authority in this department of knowledge. The same opinions are held by Gosselin, the successor of Velpeau at la Charité in Paris.[1]

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[1] This paper comprises the substance of lectures in the preliminary course, 1875–'76, at the Bellevue Hospital Medical College, and is a continuation of that which appeared in the November number of this journal.

In estimating the effects upon the system of this virus, which we regard as the real "septic poison," in other words, in studying the symptoms of *septicæmia,* it is desirable to keep these symptoms as distinct as possible from those which other virulent substances are capable of producing, as, for example, the virus of pyæmia and of the typhoid fevers. It is necessary, also, that they should be carefully distinguished from the depressing effects of sulphuretted hydrogen, which is present in all putrid matter, and, together with carbonic oxide, in the air breathed by the sick and wounded, especially when crowded together in hospitals. It is also to be kept in mind, as shown by Vulpian in his able criticism on Davaine's experiments, that rabbits, and many of the lower animals, are more easily killed by septic virus than man; and, finally, we must not forget the forcible statement of Robin, that the dogs and other animals which were confined, and made the subjects of repeated experiments in the way of putrid injections, died; while, in those which ran free and were well fed, recoveries were frequent, and the injections were often followed only by unhealthy local abscesses.

These are points bearing also upon the *diagnosis* of septicæmia, which is as difficult as it is important; for the disease is spoken of by surgical writers mostly in obscure terms, in connection with pyæmia, and what are called "low fevers," and its symptoms are not clearly set forth in your text-books. I should perhaps except Billroth, who gives septicæmia fair consideration and a separate description in his "Lectures on Surgical Pathology," which you will find a most useful work. In addition to personal observation and experience, we shall rely for our facts in studying septicæmia mainly upon this authority, and upon the results of the innumerable experiments upon animals, in which putrid matters of all kinds have been introduced into living bodies, especially since Davaine's report to the French Academy already mentioned.[1] As I have stated, the effects of the septic virus upon the human body are both local and general.

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[1] In an editorial in the London *Lancet* of September 25, 1875, upon the recent experimental researches of V. Feltz, "On the Toxic Principle of Putrefying Blood," it is stated that "old putrefied blood, in which no trace of life could be discovered, exhibited the same toxic action as that in which germs and fungus seemed to be in full activity, and it would appear that the septic action must be referred to some chemical agent which results from the presence and perhaps from the decomposition of the organisms, but is not due to the organisms themselves."

I would remark that it seems gratuitous to refer the origin of this poisonous chemical agent to the "presence" or to the "decomposition" of preëxisting organisms. Serpent-poison is made out of healthy serpent-blood, in the process of secretion, by vital chemistry. May not the albuminous compounds of the blood rearrange themselves in such a manner during decomposition as to result in the formation of a virulent poison without any aid from "organisms?" Robin does not hesitate to maintain this doctrine.

To estimate properly the dangers of local infection, and the possibility of guarding against it, we must consider for a moment the probable modes of introduction of the virus into the organism. This may take place either by self-infection, or by receiving the poison from without. Of the first we have examples in the frequent cases in which a limb has been crushed, as by a heavy weight, or by the wheel of a railroad-car, where the soft parts within are at points deprived at once of life and reduced to a pulp, while the external integument has escaped, perhaps even without laceration. Here, dead and dying tissues are confined at the temperature of the blood, in contact with parts still living but with temporarily impaired vitality, and the danger that a septic virus may form and be absorbed into the blood is extreme. In cases of this kind, septicæmia is the most frequent cause of death. A general swelling of the limb takes place, with a brownish-red discoloration of its skin, which shows the lines of the surface veins and lymphatics leading toward the trunk marked in still deeper tint.

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[1] *Bulletin de l'Académie de Médecine de Paris*, September, 1872, *et seq.* Davaine brought into prominence the idea that the poison contained in putrid matter acquired additional virulent power by transmission through living organisms. It took less of the poison to kill the second rabbit than the first; and less to kill the third rabbit than the second. This idea, and the fact of the exceedingly minute quantity of poison required to kill a rabbit or Guinea-pig, constitute the only original points in Davaine's investigations. But his experiments on rabbits and Guinea-pigs are hardly applicable to human pathogeny.

Where injury to a limb of this grave character has occurred, the experienced surgeon recognizes but one chance for saving the life of the patient, namely, prompt amputation—and this through healthy parts, at a sufficient distance from the seat of the hurt. It is of great importance that this not infrequent necessity of surgical practice should be clearly understood, popularly as well as in the profession; for I am confident that I have seen valuable lives sacrificed through the natural hesitation and unwillingness both on the part of the patient and his friends and of the professional attendant to risk so fearful an alternative. This hesitation arises from a lack of clear perception of the overwhelming character of the danger. Of course, primary amputation always involves serious hazard to life, and this we shall estimate practically on another occasion; but here there is question of the generation of a mortal poison in the substance of the crushed parts, the immediate effects of which can only be escaped by their prompt removal. Cases of this kind are often desperate in their character, and the responsibility of advising primary amputation is only justified by the urgency of the alternative; but, when the dangers of septic poisoning are clearly grasped by the mind of the surgeon, his duty becomes plain. The great advantage of an anæsthetic to facilitate explorative manipulation and to lessen the pain as well as the danger of subsequent collapse, in case an operation is decided upon, is a fact that carries great force in such a crisis.

The English surgeon of Calcutta, whose researches concerning the poison of the Indian cobra I have already quoted, arrived at the final conclusion that there was no antidote to this deadly venom, and wisely proposed to the government, as the proper remedy for the great mortality they cause throughout India, to exterminate these reptiles by offering a reward for their dead bodies. Among other remedies for persons bitten he discusses the possible advantage of amputation of a limb when the seat of the poisoned wound, and decides that, in consequence of the great rapidity with which the poison is absorbed, to be of any service, the operation must be *instantaneous*. Now, the analogy which I have kept constantly before you between serpent-venom and septic virus applies here as an argument of no little weight: if an *amputation* is to be of service in preventing septic poisoning in the case of a crushed limb, it must not be delayed.

The danger of self-infection by the tissues of a crushed limb exists, in a less degree, in all contused wounds; for, in them, parts are liable to be either killed outright, or threatened in various degrees with death. Hence the greater frequency of local as well as general complications, and consequent interruptions in recovery from such wounds.

Local complications, when due to the formation of a septic virus, take the shape of what I shall describe to you hereafter as "diffuse suppuration," that is, of pus-formation not limited by a barrier of healthy granulations, but tending to diffuse itself more or less indefinitely in the meshes of the connective tissue. The *local* effect of the poison, as soon as it is formed, seems to be to arrest the process of repair, of which process the organization of granulations is practically the most important feature. In rabbits and dogs when putrid matter has been injected experimentally into the subcutaneous connective tissue, and where death has not followed in a few hours from acute septicæmia in consequence of its absorption into the general circulation, local abscess has almost invariably resulted. Of such abscesses the boundaries or walls are not clearly defined; the meshes of the surrounding connective tissue have usually been found distended by a serous, oily, badly-smelling pus; and the tendency to unlimited extension of this so-called "diffuse inflammation," or "cellulitis," is almost always present as a marked feature. This is the most common form assumed by inflammation when it complicates contused and lacerated wounds in the human subject, as well as the parts involved in surgical operations, when a septic virus has been generated in the injured tissues. The swelling by which this unhealthy inflammation is accompanied lacks redness; it does not limit itself to the immediate neighborhood of the wound, but travels beneath the skin indefinitely. Sometimes dusky-red lines indicate the course of lymphatic trunks which have taken on inflammation, provoked by contact of the virus in its transmission, and then we say that the local septic poisoning is complicated by "lymphangitis."

Sometimes the irritating virulent matter excites suppuration in the lymphatic gland into which the vessel first empties its contents, and in a certain proportion of cases the morbid process ends here—little or no evidence of general septicæmia being subsequently developed.

Free incisions of the integuments are in most cases required to meet the consequences of this local poisoning, especially for the purpose of limiting the tendency to diffusion of the destructive process; and, with these, supporting remedies, generous diet, and careful hygiene—by which I mean, especially, cleanliness—and an ample provision of fresh air.

Where the septic virus is generated in damaged tissues and carried directly into the blood, or where there is not self-infection, but the poison is brought from without, from another diseased person, or from septic matter formed elsewhere and deposited in a wound, as by foul sponges, or by particles floating in the air as dust—then symptoms of *general* poisoning or *septicæmia* are liable to manifest themselves.

Here the mind naturally reverts to the subjects of cleanliness and hygiene, upon which I touched just now; and the question very likely will again also suggest itself as to whether, among these particles of dust always floating in the air, there are not bacteria, or at least their germs—as suggested by Tyndall—and whether *they* may not be, after all, the poisonous element of which we are studying the effects. Undoubtedly these omnipresent germs are constantly floating in the air, especially in hospitals and foul places where putrefaction is rife, and, as Billroth has asserted in his last work on "Cocco-bacteria Septica," they may be the unconscious agents by which a virulent poison is transmitted; but, for the valid reasons already set forth, he does not believe that they themselves, as bacteria, are capable of producing the effects we attribute to a *septic virus*. Before Billroth, the same opinion had been expressed by Dr. Burdon-Sanderson, one of the best English authorities in pathology, the author of the supplementary article on inflammation in the last edition of Holmes's "Surgery." After a very careful series of experiments Burdon-Sanderson expresses his conclusions on this point in the following language: "It does not follow, if microzymes come in from the outside, that they bring contagium with them; . . . it may be readily admitted that they may serve as carriers of infection from diseased to healthy parts, or from diseased to healthy individuals, and yet be utterly devoid of any power of themselves originating the contagium they convey."[1]

When septic poison is brought from without, in whatever form, there is still a question as to the avenues by which it gains access to the blood. Our first thought is naturally that its readiest entrance would be effected by way of the lungs, with the inspired air; but the weight of opinion, at present, is rather in favor of a wounded surface as the point of entrance, whether the poison be generated in or deposited upon it. There is apparent confirmation of this view in the comparative immunity from septic poisoning of the patients in the Paris hospitals during the late war, whose wounds were dressed systematically with carded cotton, which substance had been demonstrated by Tyndall and others to purify the air filtered through it from all germs and septic particles. The patients whose wounds were thus dressed got well, it is claimed, in large proportion, although lying in and necessarily breathing the air of the common ward in which the other surgical patients, whose wounds were not thus protected, almost invariably did badly in consequence of blood-poisoning. However this question may be determined, it does not absolve us from the duty of supplying fresh air to our patients.

A septic virus, as a rule, does not traverse healthy skin or mucous membrane, but through abraded or altered surfaces it may pass.[2] *A perfectly healthy* granulating surface, it is assumed, will not absorb poisons. Billroth seems to attach importance to a series of experiments in which he daily dressed extensive granulating surfaces on dogs with lint soaked in putrid liquids; when this dressing did not act as a caustic and destroy the granulations, he reports that there was no absorption, and that the dogs did well.[1] But it is only safe to assume that this is true of granulating surfaces which are in truth perfectly healthy. The constant outward flow of liquid exudation from a healthy granulating surface carries off and floats away promptly all noxious substances, and to this circumstance the absence of absorption is to be ascribed. Whenever soluble substances are applied in quantity sufficient to absorb this liquid outflow, or of such a quality as to alter the perfectly physiological character of the granulations, and are permitted to linger in contact with the capillary vessels, absorption will take place. This may possibly account for the good effects attributed to the treatment of wounds by irrigation; it is certainly an argument in favor of the frequent renewal of dressings.

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[1] "On the Infective Product of Acute Inflammation," "Medico-Chirurgical Transactions," London, 1873, p. 384.

[2] To this rule there are what seem to be exceptions; the action of cantharides upon the skin, of gonorrhœal matter upon the conjunctiva, of both chancroidal and syphilitic virus in what are called follicular sores, is only to be otherwise explained by assuming that the cuticle or epithelium is deprived of its protecting power by the action of these several poisons previous to their absorption; or that invisible cracks or abrasions exist. Sir James Paget, in describing his illness in 1871, which took the shape of diffuse inflammation, abscesses, and subsequent erysipelas, following the examination of a man recently dead of pyæmia, suspects that the material by which he was poisoned was in the pleuritic fluid in which his "hands

On the other hand, if you inject a teaspoonful of putrid fluid into the connective tissue of a dog, the operation will be followed by sharp local inflammation, fever, and septicæmia. The difference between the certain absorption which takes place from a fresh wound and the doubtful absorption from a granulating surface is explained, according to Billroth, by the lymphatics in the latter—the poison being taken up by these vessels as a rule, and rarely by the blood-vessels.[2] Finally, the probability of the absorption of a septic virus by a suppurating surface is less during vigorous health than when the vitality is depressed by disease, or bad conditions of life.

To return to the symptoms of acute general septicæmia, these are not easily distinguishable from those of the condition so commonly assigned as a cause of death under the vague

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were long soaked. Whatever the virus was," he adds, "it soaked through my skin; I had no wound or crack of any kind."—*Clinical Lectures and Essays*, D. Appleton & Co., New York, 1875, p. 322.

[1] "Éléments de Pathologie chirurgicale générales," Paris, 1868, pp. 179, 405.

[2] *Op. cit.*, p. 406.

title of "exhaustion;" or even from those of the "collapse" that follows injury, especially when the latter is prolonged, complicated by internal hæmorrhage, or succeeded by imperfect reaction. Hence it is not a matter of surprise that the existence of this grave disease is often overlooked, and its symptoms imputed to one or the other of the conditions just mentioned. This oversight is the more likely to occur, because the pictures of septicæmia which have been drawn, up to the present time, even by the best masters, are shadowy and indistinct. Its relations with pyæmia, with the malignant symptoms that sometimes follow a dissection-wound, and with the conditions described in the books as "diffuse cellular inflammation," have not as yet been clearly made out.

My own impression is, that we shall discover sooner or later that there is no limit to the number and variety of the virulent poisons begotten under varying conditions of animal and vegetable disease and decay; in other words, that there is no solitary individual septic poison, but an unlimited diversity of them. The peculiar poisons of other diseases differ in many instances but slightly from each other—as those of measles and scarlatina; there are well-recognized varieties of marsh-miasm from decaying vegetable matter; the venoms of different serpents resemble each other very closely as to their effects in general, although they present individual differences; why should not the analogy hold good as regards varieties of the septic virus?

In order that you may grasp the subject completely and get a clear perception of the group of phenomena which are caused by septic poisoning, and of the anatomical lesions resulting from its fatal action, I think it better that we should observe in the first place the results of the numerous experiments on animals, in which putrid matters have been injected directly into the blood by opening a vein. Here there is no obscurity as to the source, and very little as to the nature of the poison injected, and it is certain that it goes at once into the blood; so that the symptoms of poisoning that follow are fairly attributable to the presence of septic poison in the blood and its effects upon the vital functions and the tissues of the body; in other words, they are symptoms of septicæmia.

Afterward we shall be better prepared to study the disease in man.

The results of these experiments upon the lower animals have been singularly uniform. Perhaps those of Bergmann, in Germany, and Burdon-Sanderson, in England, will best suit our purpose as condensed in a recent report by the latter :[1] "After the injection of from fifty to one hundred minims of putrid blood, carefully filtered, into the venous system of a large dog, the animal dies in from four to ten hours, the fatal issue being preceded by *collapse, vomiting, and diarrhœa.*"[2]

"In Guinea-pigs, collapse comes on very rapidly after injection, whether into the venous system or into the peritonæum. It is marked chiefly by loss of muscular power and diminution of temperature. In the dog, or cat, the phenomena are more marked. In some few cases the animal passes rapidly into the state of collapse, but more commonly an hour or two elapses before any very striking effect is observable. Among the earliest obvious phenomena are muscular twitchings and shiverings, which may come on during the second or third hour. This is the muscular trembling and shivering or fremitus peculiar to the dog, and not rigor, or chill."

Thermometrical measurements in the rectum show that the temperature rises, from the first, until the supervention of collapse. Collapse is indicated by failure of muscular power, and is accompanied by retching and vomiting, which are soon followed by diarrhœa. This is at first attended with tenesmus, but afterward becomes colliquative. The stools are mucous, shreddy, and always more or less stained with altered blood. A few hours before death the temperature begins to sink, and it eventually falls below the normal standard. The *post-mortem* changes correspond with the symptoms.[3] "On dissection," says Bergmann, "the most important appearances are those found in the intestinal canal, e. g., intense redness and swelling of the mucous membrane. This alteration does not extend to the whole intestine, but affects the pyloric end of the stomach, the duodenum, the upper coils of the jejunum, the colon, and the rectum; the middle part of the small intestine is either quite free, or very slightly affected. The intestine is filled with reddish thick mucus, which strikingly resembles the rose-colored rice-water of the cholera-stool. The discharges contain shreds of epithelium." Bergmann did not notice peritonitis in his dogs. Burdon-Sanderson says, "The peritonæum was always hyperæmic in the most severe cases, and hæmorrhagic spots were almost always present, particularly on the omentum and mesentery." This is the only point of difference between them.

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[1] *Op. cit.*, p. 345.

[2] Dr. E. Bergmann, "Das putride Gift und die putride Intoxication,' Dorpat, 1868.

[3] Condensed from Burdon-Sanderson (as above), pp. 345, *et seq.*

Here we have a distinct view of the effects of a poison which extinguishes life by its direct action upon the nervous centres, and causes violent inflammation of the intestinal mucous membrane by provoking futile efforts at elimination. The tendency to hyperæmia of the serous membranes, and to hæmorrhagic spots of extravasation, or petechiæ, indicates profound alteration of the blood-plasma.[1]

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[1] Two Germans, Greveler and Hüter, in 1872, tried a series of experiments by injecting putrid blood and pus full of bacteria into the connective tissue or lymph-sacs of the frog, and then watched the effects which followed in the capillary circulation of the mesentery, tongue, and web, under the microscope. They recognized adhesion of the colorless corpuscles in great numbers to the walls of the blood-vessels, and subsequent stasis of the circulation in a large proportion of them. These results they ascribed, not to any effect of the poison in slowing the action of the heart, but to *the bacteria in the putrid blood.—Centralblatt für die med. Wissenschaften*, 1872, p. 769.) In 1873 Dr. Cavafy undertook a series of experiments in the pathological laboratory of the Brown Institution of London, under the direction of Dr. Klein, for the purpose of confirming or otherwise the results arrived at by the Germans. He saw very similar phenomena, but arrived at these somewhat different conclusions: 1. That the injection of putrid animal fluids in relatively small quantities into the lymphatic system of amphibia is followed by inflammation, which is not to be distinguished from inflammation produced in other ways, except by the fact that it supervenes more rapidly. 2. Large doses act as a direct poison to the nervous system, causing paralysis of the heart, with consequent general circulatory stasis. 3. The accumulation of colorless corpuscles and the formation of thrombi cannot be attributed to any local action exercised by bacteria on the walls of the blood-vessels, or on the protoplasm

In man the invasion of general septicæmia is marked by utter prostration, attended by apathy and torpor; the intelligence is unimpaired, except in activity, and there is little complaint of pain. The tongue becomes speedily dry, rendering the speech indistinct, and the patient is always ready to drink. The skin is also dry, and, as a rule, the urine is concentrated. Diarrhœa is common, the dejections being liquid, offensive, and tending to become colliquative; later in the case they are passed involuntarily. The temperature at first rises rapidly to 104°, 105°, or even higher, but there are no rigors or chills, as in pyæmia, and the thermometer shows a decreasing temperature as early often as the fourth or fifth day. This falling of the thermometer must not be taken as evidence of amendment, for it is significant of the final collapse in which life terminates—which takes place generally within the first ten days. The pulse is that of typhus, feeble from the first, and growing more frequent and smaller until, some time before the end, it becomes imperceptible, and, coincidently, the thermometer not unfrequently falls considerably below the natural standard. Although the mind is usually clear, the disease, according to Billroth, sometimes sets in with furious delirium. Profuse and offensive sweats occur in some cases, as though the system were making an effort to eliminate the poison through the skin.

On the whole, this appalling disease is marked from the beginning by a profound depression of the powers of life, as though a poison were exerting its influence directly upon the nerve-centres. Death from acute septicæmia may and does frequently occur more rapidly than I have indicated, where an injury of grave character, for example, has caused collapse from which full reaction never, perhaps, takes place, the septic poisoning being insensibly superadded to the collapse, and

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of the colorless corpuscles, but must be ascribed to—(*a*) inflammation, (*b*) paralysis of the circulatory centre, (*c*) alteration of the normal condition of the walls of the vessels produced by dragging, or (*d*) to a varying combination of these causes ("St. George's Hospital Reports," London, 1875, vol. vii., p. 17). Thus, the main results in the cold-blooded animal, although slower of course in their accomplishment, demonstrate also the effects of a "poison" acting upon the nervous centres and heart, as well as upon the blood, so as to give rise to the phenomena of inflammation; the latest experiments excluding bacteria entirely as a causative influence.

gradually extinguishing life. Perhaps, again, if reaction has justified such a course, amputation may have been undertaken, and a return of the collapse, thus provoked, may possibly merge into septicæmic exhaustion and fatal sinking. The *morbid anatomy* of septicæmia differs little from that of typhus, and other low and malignant forms of fever. All the changes found, namely, the gorged and softened condition of the spleen, lungs, liver, and muscular tissue, as well as the blood-staining around the vessels, and the liquid condition of the blood, are explained by the disorganized state of the latter, which seems to coincide with, if it does not result from, the excessive temperature it reaches in diseases of this class. The absence of multiple abscesses in the lungs, and elsewhere, is noticeable.

Acute general septicæmia, as I have described it, is generally fatal; but the disease occurs in a milder form, characterized by less marked prostration, from which the patient rallies; the poison has not, apparently, entered the blood in sufficient quantity to overwhelm the nervous centres, and it is eliminated by the emunctories. In fact, mild septicæmia exists after injuries and surgical operations more frequently, I suspect, than is generally supposed. How always to recognize it is not easy to tell you in few words, for, as you have no doubt observed, this condition of poisoned blood is not stamped by any characteristic and well-marked symptoms, like the chills and sweats of pyæmia, for example. When a patient, after injury or operation, ceases, without any obvious cause, to do well, the granulations of his wound not looking quite healthy, and having a little too much inflammatory redness and soreness lingering around it, with general depression and inappetence, a tongue tending to dryness, and a pulse which keeps too frequent—if there is no hectic periodicity about the symptoms, he may be fairly regarded as under the influence of mild septicæmia. Such a patient should be moderately stimulated, the secretions from his skin, bowels, and kidneys, gently promoted, and his lungs supplied with an abundance of fresh, pure air, so as to secure thorough ventilation of the blood, as well as elimination of poison, by these emunctories.

This latter statement constitutes, in fact, the basis of treatment in all forms of septic poisoning. The *therapeutics* of septicæmia includes all the means at our command to free the blood from poisonous impurities, and to renew its elements by stimulating the process of nutrition. To meet the first indication, an ample supply of air is an indispensable necessity, for sulphuretted hydrogen is always present in the blood as a result of the decomposition provoked by the septic poison. Bernard's experiment, which I have described to you, demonstrates that this is promptly and readily eliminated by the lungs, unless the air-supply be limited, and the patient compelled to breathe the same impure air over and over again. See, therefore, that the supply of fresh, pure air is unlimited, *for it is as important as food, and certainly more important than medicine.* Alcohol is a remedy of value, for it masks the nervous centres, as it were, from the directly mortal influence of the poison, and stimulates the nerve-force for the moment, as well as the heart, while at the same time it resists the tendency to mental depression, and it also, in a certain degree, serves as food. The theory of the therapeutics of septicæmia is, that if the organism can be tided over the influence of the poison which has been poured into the blood, this may not be necessarily fatal in amount, the supply may possibly not be renewed, successful elimination may be accomplished, and life thus saved. Hence the value of alcohol as a remedy suited to an emergency.

The soda and potash salts are useful in renewal of the blood, as eliminators by the bowels and kidneys, and, largely diluted, for bathing the skin. Thus, I would recommend Rochelle salts, or phosphate of soda, where a laxative is required; the citrate of potass, or the iodide of sodium, as a diuretic; and pearlash, with carbonate of ammonia and spirits, for local bathing. For diet, milk in liberal quantity, the addition of small portions of lime-water and gelatine to facilitate its digestion by preventing too great hardness of the clot, and brandy or some good spirits; gruels of farina, or oatmeal, with the addition of wine and sugar; bread. Eggs, and preparations of beef, etc., are better suited to exhaustive diseases which tend to assume a chronic character—which septicæmia does not; moreover, when these articles of food fail to digest, under the influence of the waning life-force, they add to the mass of putrefactive material; caution, therefore, must be observed in their employment. The use of the compounds of sulphurous acid —the sulphites, as proposed by Prof. Polli, for the reason that they prevent putrefactive fermentation—has been largely tried, but without showing the beneficial results which were anticipated. Quinine is useful; it seems to act in this disease like alcohol—by sustaining the nerve-force. Opium may be required to restrain excessive diarrhœa, but it should be used with hesitation; the sub-nitrate of bismuth in large doses may serve as a substitute, with boiled rice, or a decoction of roasted rice added to the diet. Coffee and tea are both serviceable. *Deodorizers* should be employed in all possible ways; of these the permanganate of potass is the most unexceptionable. Chlorine is efficient, but its odor is offensive to many; this is likewise true of carbolic acid. I may as well say, at once, that I think the virtues of the latter have hardly met the expectations raised by its recent enthusiastic advocates. The mortality from septic diseases has not been demonstrably diminished since its introduction as a surgical remedy. Its claims to efficiency as a "germ-killer" are undoubted, but its merits as a remedy were based upon the theory that septic and so-called zymotic diseases are all due to germs, and this theory has not yet been established. There are fashions in surgical remedies, as in dress; and fashions are, notoriously, often carried too far.[1]

It remains for us to consider the *preventive treatment* of septicæmia. It is plain that we have no reliable remedy for the disease when fully developed; under these circumstances we are forced to face the issue as we may, "on general principles," and are compelled to speak of the disease as generally fatal in its termination. Prevention, therefore, is the end to be earnestly sought for by scientific surgery. We are to use all the knowledge we can acquire as to the nature and habits of the malady, and turn it to the account of prevention. Septicæmia has not been described, to my knowledge, as occurring in the woods; it is not often heard of in the country—except as a local affection, and in cases of moist gangrene. This is obviously explained by the greater purity of country air; here, then, is an influence antagonistic to septic poisoning. In the last volume of the "St. George's Hospital Reports," Dr. William Marcet ably advocates the idea that septicæmia is a not infrequent cause of death through the poisonous influence of putrescent matter that originates in the body when weakened by disease—by a sort of molecular decomposition, through failure of the nutritive act. He regards certain modes of death, in consumption, as septicæmic; and asserts that *there is a means of arresting this septicæmic tendency*, which "certainly acts very positively toward obtaining the desired effect; this is removal to a high locality, somewhere on the hills, at a station between three hundred and five hundred feet higher than that where the patient may be residing." He says: "I have found such means successful in arresting most intractable hæmoptysis, bring severe pneumonia to a successful issue, cut short in a very few days a state of long-continued fever, and in many instances stay the progress of phthisis" (pp. 208, 209). Here, then, is evidence of another influence that is seemingly capable of antagonizing the tendency to septic poisoning.

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[1] My friend Prof. Gross (in his address before the American Medical Association last spring), while enumerating some of the fashions in medicine, remarked that "surgeons, during the last dozen years, have had carbolic acid on the brain as a dressing for wounds."—*Philadelphia Medical Times*, May 22, 1875.

A middle-aged man of full habit, from over-use of stimulus, is much more likely to get acute septicæmia after a compound fracture, or an amputation, than a thin, spare man of abstemious habits. Experience of this kind has no doubt led to the fashion of dieting patients in order to prepare them for operations—which, as a rule, is not wise, for the subject of an injury may be fat, and at the same time robust and hearty, or he may be thin and unhealthy; but this subject we will discuss on another occasion.

We have seen that it is more common to meet with local, as well as general septicæmic poisoning after contusions, crushings, and lacerations, where decomposing tissues remain in contact with living parts, and virulent substances form and are absorbed before granulations can organize themselves; and that the deadly influence of these virulent substances is able even to prevent the formation of a granulating surface. Facts of this nature teach us that it is often wiser to remove injured parts whose recovery is doubtful, and thus to avert danger; that free incisions are of great service to prevent stagnation of decomposing fluids in contact with living parts; that depending openings are often necessary to allow pus to drain away as it forms, rather than to collect and undergo decomposition. We have also learned to employ such dressings for wounds as are light, easily changed, and not calculated to heat a part and promote the putrefaction of retained discharges, but of a nature to absorb and thus remove discharges as soon as they form. All these considerations, which experience has taught us, have been enforced by frequent disasters, and they can be employed to great advantage in warding off septicæmia.

What of Prof. Lister, of Edinburgh, and the great results he has promised from the use of carbolized dressings after operations? I have just expressed an unfavorable opinion of carbolic acid as a deodorizer—which it certainly is not, unless by acting as a preventive of putrefaction—and now, when we come to consider its pretensions in this other light, I am compelled to say, again, that they are mainly, if not entirely, based upon the truths of the "germ theory." Carbolic acid can destroy the vitality of bacteria and their germs, and, if germs constitute virus, it should possess the power of preventing virulent diseases; and, again, if putrefaction depends upon bacteria, carbolic acid should be able to prevent the occurrence of fermentations, and, consequently, of putrefactive and septic diseases. This is the basis of the practice advocated by Prof. Lister, which, through this specious reasoning, and the power it seems to confer, has of late years become so popular. But bear in mind that, on the other hand, if bacteria or bacterial germs are not the cause of virulence, but certain chemico-vital changes, as I have indicated, then the value of carbolic acid as a preventive of septicæmia sinks into comparative insignificance. Now, let us inquire if the practical results have been attained, which Prof. Lister anticipated—for this should settle the question. The recorded experience of hospital surgeons must tell us. Mr. John Wood, of King's College Hospital, London, in an opening address before the surgical section of the British Medical Association, in 1873, states his conclusions to the contrary—modestly, but clearly and positively; and there is no evidence that they were disputed; on the contrary, they were confirmed by his colleagues.[1]

Alphonse Guerin, of the St. Louis Hospital, Paris, in describing the raw-cotton dressing which he advocates as a preventive of virulent diseases after operations, washes his wounded surfaces before applying the cotton, indifferently, with dilute carbolic acid or dilute spirits of camphor, and rather gives the preference to the latter.[2] It is not always easy to get at judicial conclusions as to the real value of new modes of treatment, where prejudices are still warm, and personal feelings are involved, but these which I have gleaned for you are recent and positive. The advocates of the French method of excluding germs by means of the filtering power of raw cotton are disposed even to be jocular at the expense of the system of Lister, who, they say, was so entirely absorbed with the claims of carbolic acid that he entirely overlooked the superior virtues of the *cotton-dressing*. But wider experience is making it probable that the virtues attributed even to the cotton-dressing are due rather to the greater care given to the patients to whom it is applied, and, as Gosselin has recently suggested, to the uniform temperature of the wounded part, than to any peculiar power possessed by the cotton of filtering germs from the surrounding air.

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[1] He says: "When the hospital was healthy the carbolized dressings, applied according to Prof. Lister's plan, were followed by excellent results; but, after a time, there came an unfavorable change. . . . Erysipelas, and its concomitant, pyæmia, began to show themselves; . . . wounds began to suppurate more, primary healing was less common, and the erysipelatous blush appeared with blameworthy impartiality in cases treated in all kinds of ways, and almost as impartially on my own antiseptic side, as on my colleague Sir William Ferguson's non-antiseptic side." (*British Medical Journal*, August 9, 1873.) On the same occasion, Mr. Callender read a paper on the treatment of operation wounds by isolation, which he advocates, claiming for it results "at least as satisfactory as those following the employment of the antiseptic method." In the discussion that followed it was remarked by Mr. Hey, of Leeds, that he had given Mr. Lister's plan a fair and unprejudiced trial, but repeated experience of it had convinced him that the method showed no superiority over a simple plan of treatment. This statement was also added by Sir John Rose Cormack, that "during the two (recent) sieges of Paris Mr. Lister's system was not adopted in the American ambulance, nor in either of the hospitals of which he had charge; and yet in all these the success was very remarkable."

[2] "Application de l'ouate à la conservation des membres," etc., etc., par Rasal Hervey, Paris, 1874.

As the result of my own experience and observation, I am forced to say to you that, if you rely upon carbolic acid to prevent the formation of septic virus, to the neglect of pure air and the other preventive suggestions of intelligent hygiene and sound surgery, conscientiously enforced, you will be disappointed. We must, therefore, adopt the conclusion, with regret, that neither carbolic acid nor sulphur (the two substances which possess the most positive and useful power over the lower forms of life, both animal and vegetable, and which rarely fail us when a reliable parasiticide is required) has given evidence of possessing any influence whatever in preventing the generation of the septic virus. In view of the experiments of Prof. Polli with sulphurous acid and the sulphites, and of our countryman Squibb, with carbolic acid, it would seem hardly possible that this statement could be true if the septic poison were a microscopic plant.

With these suggestions, which include about all we know that bears upon the preventive treatment of septicæmia, I will conclude by the remark that the views I have laid before you concerning septicæmia are not, as yet, generally received. Septicæmia is treated of by most surgical writers in connection with pyæmia—a disease which we shall study hereafter, and the two conditions are blended together in a very vague and incomprehensible manner—which is evidence that our knowledge of the subject is, as yet, far from complete. Erichsen cites the authority of the German Virchow for asserting that there are at least three different conditions coexisting in the majority of cases of pyæmia, that septicæmic blood-poisoning is one of them, and that this is an active cause of many of the symptoms of pyæmia.[1] Burdon-Sanderson says that pyæmia is so closely related to septicæmia, as regards its origin and essential nature, that in these respects no line of demarkation can be drawn between them.[1] Bryant uses similar language. In short, my learned friend, Dr. Ashhurst, of Philadelphia, sums up the vague doctrines of the day as to the relation between septicæmia and pyæmia, very tersely, by this conclusion: "that the only theory which is capable of accounting for all the phenomena of pyæmia is that which supposes the pyæmic condition to be induced by the absorption of septic material (usually in a liquid, but possibly sometimes in a gaseous state), which unfits the blood for the processes of healthy nutrition, induces capillary stagnation and its consequences, low forms of inflammation, or serous and synovial effusions, and may, and probably does in most cases, cause venous thrombosis, giving rise to the occurrence of loose and ill-formed coagula which, rapidly undergoing disintegration, cause capillary embolism, and thus produce the secondary deposits or metastatic abscesses which are so common in this affection."[2] This may be considered, on the one hand, as an able summing up of entirely theoretical views, containing the germs of all the truths we possess; and, again, it might be regarded as a learned confession of ignorance.

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[1] "Science and Art of Surgery," Philadelphia, 1873, vol. i., p. 613.

I think, gentlemen, you will admit that I have brought you face to face with some of the most grave and obscure pathological questions of the day—questions that must be answered if we are to advance in knowledge—and observe, if you please, that they belong naturally to the subject of surgical poisons. It has seemed to me wiser, in studying this subject, to fairly and frankly recognize our ignorance, as the first step in advance, and to fall back upon our only sources of exact knowledge—experimental research, and especially experiments upon the lower animals. These constitute avowedly the most valuable means of establishing accurate and positive knowledge in physiology, and physiology is identical with pathology in its modes of study. These have taught us, I think, that septicæmia is a distinct and well-marked condition of disease, depending for its existence upon the poisonous effects of a peculiar virus, and that it is not a mere phase of pyæmia. I have therefore adopted Billroth's teaching on this subject, as the best and safest for the present, believing that, as we learn more, we shall come to see distinctions and differences which are now inappreciable and obscure, for this is one of the features which have always marked our advances in knowledge. As evidence of this, in his latest publication,[1] Mr. Erichsen uses clearer language in regard to septicæmia than in the last edition of his "Surgery," and I cannot do better than to quote it in conclusion: "By septicæmia I mean," says he, "a blood-disease, a form of typhus or 'putrid fever,' directly occasioned by the absorption into the system of putrescent matters from fetid ulcers, necrosing cancers, etc., and which may thus become self-infecting. In it there are no rigors or sweats, but extreme depression of vital power, and usually rapid death with typhoid symptoms. After death no metastatic abscesses are found. But the solid organs, more especially the spleen, the liver, and the lungs, are found darkly congested, loaded with blood, soft, and at times almost pulpy. It is a disease that may affect the uninjured as well as the wounded; and the reason why a person who has been the subject of a severe operation, or of a serious injury, is more liable to septicæmia than another, appears simply to be that his constitution has been weakened by the shock to the nervous system or by the loss of blood sustained, and that consequently he is rendered less resistant to the invasion of any disease of a miasmatic type"—by which he means any disease that comes by a volatile poison, or virulent substance floating in the air.

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[1] *Op. cit.*, p. 873.

[2] "Principles and Practice of Surgery," Philadelphia, 1871, p. 417.

Art. II.—*On Transfusion of Blood.*[2] By Thomas J. Gallaher, M. D., Pittsburg, Pa.

Previous to the time of Servetus and Harvey, very crude and erroneous notions, respecting the circulation of the blood, were entertained.

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[1] "On Hospitalism and the Causes of Death after Operation," p. 72, London, 1874.

[2] Read before the Bedford Medical Club, October, 1875.

The arteries were supposed to be filled with air or some kind of spirit, which moved to and from the heart, while the veins alone contained blood. These fluids, it was thought, moved in one direction during the day, and in the opposite direction during sleeping-hours.

With such views, it is not strange that the transfusion of blood from the veins of one animal to those of another should not have been known or practised.

As early, however, as 1604, a work was published by one Magnus Pegil, who, under the head of "Mechanical Inventions," described transfusion as it is now understood.

He not only detailed the operation with accuracy, but declared that its adoption would bring health to the diseased, and prolonged life to the aged and infirm.

Andreas Libavius, whose work appeared in 1614, is credited by Paul Scheele and Dieffenbach, the latter of whom wrote in 1828, with being the originator of transfusion. To Pegil, however, belongs the merit, as his work upon the subject precedes the publication of Libavius by at least ten years.

After the discovery of the circulation of the blood by Harvey, in 1620, more attention appears to have been directed to the subject, and its objects better understood. One thing had yet to be determined, namely, the effects of a foreign substance in the blood; this in part was happily settled by a huntsman who injected Spanish wine into the veins of a hound for some illness. The operation was a success; the dog recovered, and no detriment resulted.

The distinguished architect, Sir Christopher Wren, then professor at Oxford, early turned his attention to this subject, invented an instrument, and made many experiments on dogs. His experiments consisted chiefly in throwing medicated infusions into their veins. Soon after the experiments of Wren became known, Dr. Lower began a series of experiments on the transfusing of blood in the inferior animals.

He connected the carotid artery of one dog with the jugular vein of another by means of a tube, and allowed the blood to flow from one animal into the other till the donor sank and died from the loss of blood, while the recipient would get up and run away as if nothing strange had happened.

To prevent plethora in the dog receiving the blood, Dr. Lower would allow some blood from time to time to escape from the upper end of the divided jugular.

This and similar operations on the dog were performed by this operator on many occasions, when he began to entertain the most extravagant notions respecting its usefulness and varied applications. In a letter to Boyle, the author of a work on experimental philosophy, he claimed a wide range of usefulness for the operation. He supposed that not only the health of an animal might be restored, but even his nature and instincts changed. He failed, however, to establish these points; and, while he was yet confining his attention to dogs, it was suddenly announced that transfusion had been successfully employed upon a human subject in France.

Denys and Emmerez, of Paris, after having successfully experimented on brutes, determined on the first opportunity to try a moderate transfusion of blood on the human subject. Previous to the performance of this operation, Denys consulted with several eminent men in Paris, hoping thereby to gain their support and sanction. Not having succeeded in this expectation, but instead meeting with violent opposition, he determined to try the experiment on his own judgment and responsibility. Accordingly, a young subject, aged fifteen years, who had been previously reduced by repeated bleedings, and was at the time "languid, stupid, and slightly dropsical," was procured for the experiment.

Denys skillfully transfused from nine to ten ounces of blood from the crural artery of a young calf into the basilic vein of the arm, with, it is asserted by Denys, the most gratifying results. The patient was restored to health by this one operation. This experiment having apparently demonstrated that blood taken from an inferior animal could be transfused into the human subject with safety, experimenters elsewhere were soon found to repeat the experiment of Denys, and modify it according to their judgment. It was even conjectured that blood taken from any of the mammalia would answer equally as well as that of the lamb or calf.

On the 23d of November, 1667, the same operation on a human subject was performed for the first time in England.

Drs. Lower and King were the operators on this occasion, and transfused, it is supposed, about nine or ten ounces of blood from the carotid artery of a sheep into the basilic vein of the arm. The man declared himself greatly benefited by the operation, and it is said that no injury ensued. The same year transfusion was performed a second time in Paris on the human subject, with success. Emmerez on this occasion was the operator. The subject was a stout, healthy man, who was paid for submitting to the trial. A third subject for the operation was soon found. An insane man whose mania was periodical in its recurrence, and often lasted nine months, was brought to Denys for treatment by his novel method. On examination Denys considered him a fit subject for transfusion, and accordingly made suitable preparations for the operation. His name was Antoine Mauroy—a name which became noted in the early history of transfusion. Denys twice transfused blood into his veins from the artery of a lamb, and declared his patient cured. About this time a woman who was said to be suffering from apoplexy was also cured by a similar operation.

These four cases of reported successful transfusion by Denys and Emmerez gave to the former a great reputation as a public benefactor and skillful surgeon. The subject of transfusion now excited universal attention in Paris; but, while the friends of the operation advocated its employment, and predicted the most wonderful results from its general adoption, its enemies, of whom there were many, let no occasion slip to hold the operation and its promoters up to scorn and condemnation. The controversy between its friends and enemies was soon brought to a crisis by a series of unfortunate accidents which occurred about this time.

In Italy two men were supposed to have been killed by the operation, on which account its further performance was prohibited by the pope; while a son of the chief minister of state of Sweden, Baron Bond, after having been transfused twice by Denys and Emmerez, died soon after the second operation. It was charged by the enemies of transfusion that the operation caused his death.

The insane man Mauroy, who had been operated upon twice and reported cured of his mania, at the end of two months had a return of his symptoms, with fever, in consequence, as is alleged by Denys, of having indulged in various excesses.

The operators, Denys and Emmerez, were prevailed upon by Mauroy's wife to operate upon him the third time, and this third operation proved fatal, for the man expired while under the hands of the operators. Denys was accused and tried for manslaughter, and, although not condemned, his operation, namely, transfusion of blood on the human subject, was condemned by the court, and its employment forever prohibited in Paris, unless with the consent of the medical faculty.

The expected brilliant career of Denys was thus suddenly brought to a close, and the operation itself abandoned not only in Paris but over all Europe. Denys withdrew from public attention, and became physician in ordinary to the king. It may be proper to bear in mind that, in all the experiments heretofore made on the human subject, the blood was obtained from sheep, lambs, or calves.

In 1785, more than one hundred years after its abandonment in Paris, Dr. Harwood, Professor of Anatomy at Cambridge, revived the operation in England. His experiments were confined to the inferior animals. At first Dr. Harwood transfused the blood of one animal into the veins of another of the same species, but subsequently he used the blood of one species to transfuse into the veins of another species.

He would bleed a dog eight or ten ounces, and then pass into his veins eight or ten ounces of blood from a lamb or calf, and then reverse the operation—throwing the blood of a dog into the vessels of a calf, etc. These experiments he repeated many times, so as to satisfy himself that the blood of one species of animals could be transfused into another species with as much advantage as when the transfusion was performed between animals of the same species.

At first he employed arterial blood in his operations, but finally used venous blood alone, thinking the former too stimulating to the right side of the heart. He always transfused into the veins.

In the medical annals of our own country, at and before this period, I can find no case on record of transfusion in the human subject.

The nearest approach we have to it is to be found in the experiments of a Dr. Seybert, of Philadelphia, in 1795, who injected into the veins of animals putrid blood, ichorous matter, and the bloody washings of putrefying meat, for a purpose foreign to our present inquiry.

About the year 1819, Dr. Hale, Jr., of Boston, among a number of experiments on animals, injecting into their veins medicated infusions, had the boldness to inject castor-oil into his own veins. His safety is only to be attributed to the difficulty he experienced in its introduction.

Early in the present century, Dr. Blundell, of England, instituted a series of experiments on animals, with the view of applying the practical experience thereby acquired to operations on the human system. Being an obstetrical practitioner of large experience, he had several opportunities of witnessing fatal results from uterine hæmorrhage, which he conceived might have been averted by the timely transfusion of blood. He repeated the experiments of Harwood and others on inferior animals, and then as an original experiment kept a dog alive and in good health, for a period of three weeks, by injecting him daily with blood taken from another dog—no food being allowed him.

At that time it was generally conceded that transfusion between animals of different species could be conducted with perfect safety to the animal receiving the blood. Dr. Blundell, however, demonstrated that this is only true in a limited degree. When this operation, according to Dr. Blundell, is indiscriminately employed among animals of different species, in which the amount of blood is considerable, it is always attended with unpleasant, and often, immediately or remotely, fatal results. Benefit appears to result only when the quantity used is small.

Transfusion between allied species appeared to be more successful than when the animals are more distantly connected in the scale of animation. Thus, between the calf and the sheep reciprocal transfusion in small amounts frequently yielded good results.

Blood of a mammal injected into the veins of a bird caused speedy death. Dr. Blundell, from his numerous experiments came to the conclusion that, in order to obtain the greatest amount of good from the operation, and to secure the greatest freedom from danger, blood should always be taken from an animal belonging to the same species as the recipient. For transfusion in the human subject the blood therefore should always, if possible, be obtained from a human being. This opinion Prévost and Dumas, Dieffenbach and Bischoff, subsequently embraced.

Dr. Blundell then applied his researches to the human subject, and employed transfusion in cases of extreme exhaustion following uterine hæmorrhage from any cause. He reports wonderful success in several cases. Subsequently he extended its application to other forms of hæmorrhage, as those following accidents, surgical operations, and lesions of the internal organs, in which the excessive loss of blood threatened speedy dissolution. Meanwhile the operation had been extended to the cure of other affections, mostly of an exhausting character. In the extreme prostration sometimes following chronic and colliquative diarrhœa and profuse suppurative discharges, and in mania, epilepsy, apoplexy, and mental unsoundness generally, it had been resorted to.

Dr. Blundell always preferred human blood where this could be obtained, but, where this was impossible, he sometimes used lamb's or calf's blood in small quantities. He threw aside the imperfect instruments used by his predecessors, and invented others more perfect.

A syringe with canulæ attached, and a gravitator, were the instruments he employed. Dr. Blundell may be regarded as the *inventor of the mediate method of transfusion*, and the most successful operator of his day.

Collaborators with Blundell were Prévost and Dumas, of Paris, who made many accurate and skillful observations on the blood of man and animals. They subjected the blood of all the animals within their reach to searching microscopic examinations, to determine the size and form of the red corpuscles belonging to each.

They found the blood of all the mammalia, excepting the camel and llama, to contain spherical corpuscles, and that of fishes, reptiles, and birds, elliptical. As the blood-corpuscles of the calf, sheep, and dog, resemble those of man in number, shape, and conformation, it was inferred, and the inference was measurably sustained by direct experiment, that the blood of these animals might, to a limited extent, be advantageously substituted for human blood.

These observers also demonstrated that the fibrine of the blood contains little or no vitalizing properties, and that these reside chiefly if not entirely in the red corpuscles. Defibrination, therefore, does not alter or destroy the stimulating properties of the blood.

These observations did much to place the whole subject of transfusion on a scientific basis, but they had at the time little effect upon the professional world.

Contemporary with Blundell, and Prévost and Dumas, were Dieffenbach, Bischoff, Dr. Haighton, Magendie, and a few others who practised transfusion, and warmly supported the operation, yet the experience of these able men had but little effect on the medical world. The whole matter was looked upon as a strange and useless innovation, and unworthy of record in the surgical text-books. A more auspicious revival soon began to dawn.

Dr. Routh, of England, published a valuable article in the *Medical Times*, August 1, 1849, on the subject of transfusion, in which he strongly favored the operation. He tabulated forty-eight cases in which the operation had been performed, with fatal results in eighteen. The failures, he avers, were to be attributed more to the fatal character of the maladies for which it was employed than to the operation itself. He recommends its employment in the collapse of cholera, and employed it himself in four cases; and, although death followed in every instance, yet it seemed to prolong life. In one instance the patient lived sixty hours after transfusion. As to the mortality of the operation itself he considers it to be one in eight-and-a-half when legitimately required, a statement in harmony with the opinion of Dr. Peet, published in the *Lancet* in 1872.

Dr. Peet considers it a safer and more justifiable operation than many of the major operations of surgery. He performed Blundell's operation with slight modifications, and used fibrinous blood.

Notwithstanding the earnest efforts of Dr. Routh, the subject of transfusion did not meet at the time with much favor, for, as late as 1859, Dr. Ed. Marbin, of Berlin, could only find on record fifty-seven cases in which it had been performed on recently-confined women, and Dr. Blasius, at a more recent date, was only able to collect and tabulate one hundred and sixteen cases.

These latter embraced cases of every kind, occurring in different parts of the world; of which fifty-seven were performed in England, forty in Germany, seven in France, and but one in America. The recoveries did not much exceed the failures up to this period; and this mortality was no doubt the cause of its neglect by the profession. Within the last few years, however, the operation has met with much more favor, and operators can now be numbered by the score. A better knowledge of its therapeutic value, an improvement in the instruments employed, and, as a consequence, more encouraging results, have led to this change of opinion in its favor.

At the present day transfusion in the human subject is a recognized operation all over the civilized world. While England and Germany can justly lay claim to the recent successful revival of the operation, we, on this side of the Atlantic, are just beginning to recognize its importance as a therapeutic *dernier ressort.*

In 1867 a prize essay "On Transfusion" was published in the translations of the Medical Society of Pennsylvania, by Jean Baptiste Uttersperger, M. D., of Munich, in which the subject was very ably and exhaustingly discussed.

This essay, to which I am indebted for much valuable information in the preparation of this paper, excited considerable interest and led to the performance of the operation in this country. In December, 1868, Dr. J. G. Allen, of Philadelphia, as reported by Thomas G. Morton, M. D. (*American Journal Medical Sciences*, July, 1874), operated successfully in a case of hydræmia from frequent uterine hæmorrhage.

This, Dr. Allen asserts, is the first successful case of transfusion reported in this country.

Since this time six other cases are reported by Dr. Morton as having been operated upon successfully by himself and Dr. Allen, assisted by other medical gentlemen in Philadelphia—all of which are reported as successful, though several of the subjects subsequently died from causes foreign to the operation. Human defibrinated blood was employed in these cases. In New York, Dr. Fordyce Barker reported to the Medical Society the performance of the operation in six cases, in that city, with an unfavorable result in every instance.—New York Medical Journal, March, 1875.

Dr. Winants, of Wilmington, N. C., reports a case of transfusion performed in 1871. He used lamb's blood, not defibrinated, by the mediate method. The patient was attacked on the tenth day with gastric symptoms, and died on the fifteenth.—*American Journal Medical Sciences*, January, 1872.

Besides these cases, a few more are found in different journals, in which the operation has been more or less successful in this country. The writer of this paper performed the operation once, August 23, 1875, in a case of leucocythæmia, with chronic diarrhœa, but the result proved unfortunate. He used human defibrinated blood.—New York Medical Journal, October, 1875.

Operators have not yet settled the question as to the merits of the different methods of transfusion, nor are they unanimous in opinion as to the kind or condition of the blood to be employed. The earlier operators transfused by the immediate method alone.

The instrument employed on these occasions consisted merely of a tube and canulæ, through which blood was passed from a vein or artery of one individual into the vein or artery of another. At first it was crudely constructed, and many accidents no doubt happened in consequence of its imperfections. No correct estimate could be made of the amount of blood transfused. Modifications or improvements were made from time to time, but none fulfilled completely the requirements of safety and success. The simple instrument of Dr.

Aveling, invented in 1864, consists of two canulæ, and an India-rubber tube containing a bulb in its middle, capable of holding about two drachms of fluid. When the apparatus is properly applied, blood flows through the canula and tube from one blood-vessel into the other, but its velocity is considerably increased by the forcing and suction properties developed by manipulating the bulb. By knowing the capacity of the bulb and the number of times it is emptied by pressure, it is an easy matter to estimate, approximately, the amount of blood transfused. The increased rapidity of the blood-current thus secured lessens the liability to embolism from coagulation.

In the performance of the immediate method, the blood may be taken from a human being or from an inferior animal, as the sheep or calf; but, as already stated and as will hereafter be more fully shown, that of a human being should always be preferred. Among the most distinguished of those who employ this method at the present day, are Drs. Aveling, Hesse, of Nordhausen, Oré, of Paris, and Thurm, of Frankfort. This method, which was the first practised, is now, with the aid of the improved instrument, conceded to be both safe and efficient in all proper cases, where it is performed by a skillful operator. It must be admitted that phlebitis sometimes follows the operation—more frequently, perhaps, than when the direct method is used—since the veins of both the giver and receiver of the blood are liable to it, from the cutting and handling to which they are subjected, and the presence of a canula in each. Besides, from the friction of the rough sides of the tube, small coagula sometimes form, which, entering the circulation, give rise to embolism, with all its dangerous results. Nor can a subject always be obtained who, in giving blood, would submit voluntarily to the operation required by this method. These objections, together with the fact that the amount of blood transfused cannot be accurately—only approximately—measured, are sufficient to prevent its adoption as the only proper method of transfusion.

As already mentioned, Dr. Blundell first employed the syringe in the transfusion of both animals and men. He used pure, fresh blood, not defibrinated. About two ounces of blood having been drawn into a suitable vessel, heated to 100° Fahr., or slightly more, he quickly injected this into the vein, and, when more was drawn, repeated the operation. This procedure he repeated until the requisite quantity of blood was injected, care being taken to avoid bubbles of air, small clots of blood, and foreign matters of every kind. This injection, having been performed within two minutes after the blood was drawn, was attended with no danger from coagula when human blood was used, as from five to ten minutes must elapse after it has been drawn before coagulation can occur.

Blundell's method of using fresh blood by the mediate method cannot always be resorted to with safety, especially when this is taken from an inferior animal, since the coagulation of such blood is rapid. Dog's blood, for instance, begins to clot in two minutes. Since his time a majority of operators prefer defibrinated blood by the mediate method, no matter from what source it may have been obtained. The blood thus prepared appears more stimulating than non-defibrinated, having acquired increased energy by the absorption of oxygen in the process of stirring.

It may not be out of place here to give a general description of the mediate method of transfusion, when defibrinated blood is used. No haste is required, unless sudden death is impending. The blood should be drawn from the donor in a clean vessel, placed in water, so as to be heated to a temperature of not less than 100° nor more than 105° Fahr., at which it must be kept.

The amount of blood required depends upon the nature and urgency of the case—say from six to twenty ounces. The blood should meanwhile be whipped, or briskly stirred, with splits of broom or whalebone tied together and carefully cleaned, and then strained through fine muslin or cambric, previously rinsed out in warm water. All the while the temperature should be kept uniform between the degrees indicated above. The blood is now ready for injection.

The vein having been secured, and a small canula inserted, the syringe, after being filled with blood, and its nozzle and the canula carefully secured from bubbles of air, etc., the injection should be completed. The syringe must be a good one, perfectly clean and free from oil, and at the time of the operation warmed in water of a temperature equal to that of the blood employed. Several syringefuls may be required before the operation is completed. Instead of the syringe, the instrument of Beattie has been sometimes employed with success. This instrument consists of a glass pipette, capable of holding eight ounces, to the inferior and smaller extremity of which is attached a fine caoutchouc tube. When the tube is inserted into the vein, the defibrinated blood flows by hydrostatic pressure alone. This is a simple and cheap instrument, and may answer well in many cases, but it has been known to fail from the pressure being insufficient to force the blood into the vein.

Some controversy has arisen among operators as to the kind and quality of the syringe to be employed, as well as the form and composition of the vessel in which the blood should be caught and held, and, as a consequence, several alterations in the instruments have been made. From all we can learn on this subject, it appears certain that nothing is gained by using apparatus of a particular mould or composition, but that all the advantages of the operation can be obtained by using a syringe and deep bowl or basin, with other appliances by which a proper temperature and cleanliness can be preserved, the blood kept free of air-bubbles and clots, and the blood-vessel secured from injury. Of course a reasonable amount of skill, care, and judgment, is necessary on the part of the operator.

Most operators inject the blood into a vein, but some, among whom we may place Dr. Hueter, prefer an artery. The advantages of injecting an artery instead of a vein, according to Dr. Hueter, are, that the blood reaches the heart more slowly and regularly, and that in case air should accidentally be admitted into the vascular system, it would be absorbed by the capillaries before reaching the heart. The danger of phlebitis is also entirely obviated. The tibialis posticus just above the ankle is the artery generally selected. An objection to arterial transfusion may be found in the occasional occurrence of gangrene in the part supplied by the artery, for the operation requires a tying and dividing of the vessel. A recovery, with partial loss of a member, would be a calamity. Venous transfusion, it is thought, answers all practical purposes.

We now consider it proper to discuss more elaborately the question as to the kind of blood to be used for transfusion on the human subject. We have seen that Harwood and Magendie contended that the blood of many animals could be safely substituted for that of each other; and that Dieffenbach, Blundell, Prévost, Dumas, and others, arrived at an opposite conclusion. The question is now undergoing a thorough investigation, and it will be our duty to bring forward some of the facts elicited on this interesting subject.

Recently Dr. Hasse, of Nordhausen, had reported fifty-one cases of consumption in which lamb's blood had been employed in transfusion, with but one immediate fatal result. The ultimate results of Dr. Hasse's operations are not given, but, judging from the experience of subsequent operators, there is reason to believe that the remote effects of his transfusions were not as favorable as the reports seem to imply. Drs. Thurm, of Frankfort, Oehme, of Dresden, Kuster, and others, report cases in which lamb's blood was used, with fatal results in a majority of cases. When apparent benefit resulted, it appears to have been only in cases where but a few ounces of blood had been transfused, the amount being insufficient to cause dangerous symptoms.

It is the general experience of those who employ lamb's or calf's blood that the operation is frequently accompanied or followed by unpleasant and even dangerous symptoms, some of which eventually end in death. During the operation the sudden dyspnœa and distress to the patient are sometimes so great as to require a suspension of it. Among the symptoms noticed shortly after the completion of the operation, say within the first half-hour, were dyspnœa, pain in head and back, shivering, vomiting, and even convulsions. These unfavorable symptoms generally passed off as rapidly as they came on. In the course of some hours, however, more serious phenomena appeared. Among these may be enumerated, hæmaturia, oliguria, and albuminuria, occurring either separately or combined, and accompanied with severe pain in the back, and urticaria.

When the case terminated fatally the symptoms generally indicated uræmic poisoning or embolic occlusion of some part of the arterial system. After death the kidneys were invariably found inflamed.

It was announced long ago by Magendie that when blood of an inferior animal was transfused into a human subject the red corpuscles of such blood rapidly disappeared by solution in the human serum.

That the corpuscles of a dog's blood soon dissolve in human serum is a fact well known. To Prof. Landois, of Greifswald, are we chiefly indebted for an able and almost conclusive examination of this interesting part of our subject. He found that, when the blood of mammals, deprived of fibrine, is injected into the veins of a frog, its red corpuscles quickly dissolve. Those of the rabbit disappear in from three to five minutes, while dog's or pigeon's resist dissolution from twenty to thirty minutes. In the process of destruction the hæmoglobine of the corpuscles is first set free, which, mingling with the circulating mass, changes the whole to a ruby-red color. The more solid portion of these globules, called by him the stroma or collectively the stromata, then in most instances gradually dissolves. In many cases, however, the stromata, instead of dissolving, aggregate into masses forming emboli which are often of a size to plug up vessels and give rise to embolism and inflammatory conditions. A portion of the globuline, with albumen, is soon found in the urine.

Extending his experiments to different species of mammalia, Prof. Landois discovered that the serum of one mammal destroyed the blood-corpuscles of another, and that the serum of different animals possessed this solvent property in various degrees. The serum of a dog is the most active, and that of the rabbit the least.

It appears also that the corpuscles of different animals possess the power of resisting dissolution in the same serum in different degrees; those of rabbits resist the least, dogs and cats the most. The different stages in the process of blood-solution were tested from time to time by an examination of the blood of the animal operated upon.

Dyspnœa, paralysis of the hind-legs, and even convulsions and death, sometimes resulted during the progress of these blood-changes. When the transfusion was performed between animals of the same species, these blood-changes and dangerous symptoms did not occur (*American Journal of Medical Sciences*, October, 1874, from *Medical Times and Gazette*).

According to Dr. Ewald, in an article in the *Irish Hospital Gazette* (*American Journal of Medical Sciences*, July, 1875), Ponfick, in making observations similar to those of Landois, discovered free hæmoglobine in the blood and in the various organs and secretions. The tubules of the kidneys especially were blocked up by it so as to obstruct materially the secretion of urine. These experiments of Landois and Ponfick on inferior animals serve to explain some of the phenomena observed in the transfusion of man with their blood. Heretofore when dangerous symptoms or death occurred, it was generally attributed to bubbles of air, small clots of blood, or some foreign substance introduced from without by carelessness or imperfect instruments. How many of these symptoms, occurring after transfusion with the blood of brutes, may be traced to a different origin! The presence of free hæmoglobine in the blood and secretory organs, and the formation of small emboli from the stromata of the disintegrating blood-corpuscles, give us a clew to the proper interpretation of this phenomenon. The occlusion of important blood-vessels by the emboli thus formed, and the irritating effects of free hæmoglobine on the excretory organs, especially the kidneys, explain satisfactorily the occurrence of dyspnœa, pain in the back, local paralysis, suppression of urine, and uræmic poisoning—phenomena so often noticed after transfusion with lamb's blood.

From the light thus thrown on the subject, united to the experience of many competent observers, the use of lamb's or calf's blood for transfusion in the human subject is unsafe and often dangerous, and should, therefore, never be employed when human blood can be had. When used at all, it should be in such quantities—only from two to five ounces—as will reduce the danger to the minimum degree.

Human blood is therefore always demanded where the operation is deemed advisable, and the amount to be transfused will depend upon the nature and urgency of the symptoms. From six to twenty ounces may be used at once. A less amount than five or six ounces is probably of little use in any case.

We now approach the therapeutic application of transfusion. The earlier operators confined their operations chiefly to cases of extreme exhaustion from sudden loss of blood, especially to anæmia from uterine hæmorrhage; and subsequent experience has shown its great utility in such cases: of these, *post-partum* hæmorrhages form the most numerous class. Blundell, Dieffenbach, Bischoff, Aveling, Nélaton, Edward Turner, Robert Barnes, McDonald, Playfair, and many others, have resorted to it in similar cases with gratifying results, and they all bear testimony to its importance and usefulness. Uterine hæmorrhage may occur from a variety of causes, as from placenta prævia, premature labor, inversion of the womb, inertia, uterine tumors, carcinoma, etc., and may be of such severity and persistence as to threaten life.

In such cases the transfusion of blood may be of great value in maintaining the life of the patient till the hæmorrhage ceases. It has been used with equal benefit in cases of sudden prostration from loss of blood from any cause. Accidents, surgical operations, rupture of blood-vessels in the lungs, stomach, or intestines, from diseased conditions of these parts, and, in fact, sudden hæmorrhage from any part of the body, may call for its immediate performance. In cases of chronic ulcers, dyspnœa, chlorosis, persistent vomiting, over-lactation, and the like, where, from want of digestion or from losses to the system by constant drains, the patients have become almost irreparably exhausted, the transfusion of from six to ten ounces of new blood, from time to time, will not only prolong life, but may lead to ultimate recovery.

Dr. Belina employed it with success in an eight months' fœtus, who had become asphyxiated during the last efforts of labor, by injecting into the umbilical vein of the cord defibrinated blood obtained from the placenta.

The only eminent authority that objects to transfusion of blood in dangerous hæmorrhages after confinement, is Dr. Cazeaux. He thinks all the advantages of the operation can be obtained by making compression on the abdominal aorta, while the dangers of the operation and the time lost in making the necessary preparation more than counterbalance all its advantages. In other words, his teachings amount to about this: do not perform the operation in exhaustion from uterine hæmorrhage when it is not necessary (*op. cit.*, 1868).

In leucæmia, used in connection with other remedies, transfusion has proved useful in delaying the fatal termination of the disease, and in the collapse of cholera it has been successful in several cases. Dr. Stadthagen reports two cases of transfusion with defibrinated blood in the collapse of cholera, with encouraging results. One of the patients recovered, but the other died.—NEW YORK MEDICAL JOURNAL, September, 1874, from *Medical Times and Gazette.*

Dr. Hueter reports three recoveries from septicæmia by transfusion, and Dr. Winants reports a case, in exhaustion from gangrene attacking the stump of an amputated leg, with some benefit.—*American Medical Journal*, January, 1872.

Purpura hæmorrhagica has been so treated, and Dr. Allen (*American Medical Journal*, July, 1874) reports a case in which, from repeated hæmorrhages, the patient was reduced to the point of death, but on transfusion with defibrinated human blood he revived and lived a month. On a recurrence of the hæmorrhage, he rapidly sank and died. Dr. Morton treated a case of hæmorrhœa petechialis, in a child eleven years of age, successfully by two transfusions of human blood. —*Ibid.*

In the extreme prostration of neglected cholera-morbus, when the patient suffers intense pain from violent muscular spasms, and when he is nearly or quite pulseless from the excessive and frequent alvine discharges, there is reason to believe that a sudden introduction of blood into his veins, defibrinated or pure, would prove of great advantage. Also in the last stage of typhoid fever, where the patient is threatened with speedy death, either from the severity of the disease, or from the exhaustion consequent upon the persistency of diarrhœa, or hæmorrhage from the bowels, it may be resorted to with every prospect of success.

As early as 1864, Kuhn recommended, on theoretical grounds, the transfusion of blood in cases of poisoning by carbonic oxide; and Eulenburg subsequently extended its application to acute poisoning from other substances, such as unite with and exert their toxic influence on the blood itself. Poisoning by chloroform, ether, carbonic acid, strychnia, and different preparations of opium, comes under this head.

In poisoning with carbonic oxide, it is known that the gas enters and fills the air-cells of the lungs so as to interfere with the due oxygenation and decarbonization of the blood. The patient therefore suffers not only from the poisonous action of the gas on the blood, but also from the toxic effects of carbonic acid which is thus retained. In treating such cases by transfusion, blood is first drawn from the patient's arm, and then a similar quantity of human blood transfused into him. The alternate abstraction and transfusion of blood may be repeated several times before the patient shows signs of recovery. Several cases are reported as having been saved from impending death, by this procedure. In abstracting blood before transfusion, danger from over-repletion is avoided, while fresh blood takes the place of poisoned. Life may thus be prolonged till so much gas is removed from the system as to render what remains too feeble to exert poisonous properties. Hueter succeeded, by this proceeding, in saving a patient poisoned with carbonic oxide (*Dublin Medical Journal*, November, 1874), as did Dr. Ewald.

Poisoning by carbonic acid, chloroform, strychnia, and the preparations of opium, may be treated in the same way, but only after other proper remedies and applications have been tried in vain.

It was thought, for a while, that in transfusion of blood would be found a powerful and certain remedy for consumption. The expectations of the profession, so far, have not been realized. In all the cases treated lamb's blood has been employed, from which all the good desired from transfusion could not be expected. The use of human blood might have given better results.

Dr. Hasse's experience in transfusion, in consumptives, has already been alluded to. For various reasons the favorable results claimed for him are at least questionable. Dr. Hasse must certainly have met with many serious results in the course of his experience, or he would not have given the following precautionary advice as to the selection of proper subjects for transfusion. He forbids the operation where the pulse is strong, and performs it only on "phthisical patients where there is anæmia, with frequent pulmonary hæmorrhages, accompanied by doubtful or slight physical signs."

Dr. Oehme, at the City Hospital, Dresden, and other eminent physicians of that city, performed the operation of transfusion, using lamb's blood, on fourteen consumptives in the early stage of the disease. From six to twelve ounces of blood were injected at each operation. The usual alarming symptoms, followed by hæmaturia, were observed. As to the ultimate effects, no permanent advantage was gained. Neither sleep, appetite, nor relief from local symptoms, was obtained. —*London Lancet*, American edition, August, 1874.

Dr. Thurm, of Frankfort, operated on three cases of consumption with lamb's blood, using from three to six ounces, without permanent good; and Kuster, according to Dr. Ewald, operated with the same kind of blood six times, with as many deaths.

From these and other statements found scattered through medical journals, it seems certain that the transfusion of lamb's blood is not a remedy of any value in phthisis.

Some of the conclusions arrived at by the foregoing considerations may be summed up as follows:

Transfusion of blood, for some diseases and deranged conditions of the human body, is a legitimate operation.

Either fibrinous or defibrinated blood may be used, but in the great majority of cases the latter is preferable, as being equally efficacious, more stimulating, and more easily and safely introduced.

Both the mediate and immediate methods may be used, but the mediate is the one mostly preferred, since defibrinated blood cannot be introduced into the system without it, and since this method is the only one by which the amount of blood transfused can be accurately measured.

The blood of brutes should never be used in operations upon the human system, unless in small quantities and under peculiar circumstances.

The treatment of consumption by transfusion with lamb's blood is neither successful nor safe.

The operation of using human blood is often useful, and even demanded, where, from loss of blood, profuse suppuration, or other exhausting drains, the life of the patient is in imminent peril. It has been found especially useful in the sudden prostration occasioned by uterine hæmorrhages.

Art. III.—*Observations upon Two Cases of Fibroma Molluscum.* By J. E. Atkinson, M. D., Physician to St. Joseph's General Hospital and to the Baltimore Special Dispensary.

It is greatly to be regretted that some medical writers should have applied the same general term, molluscum, to two such different affections as molluscum simplex or fibrosum and molluscum contagiosum. The student unacquainted with the clinical or histological histories of these diseases is thus prejudiced to a high degree in favor of their identical essence, before entering upon their investigation; and, undoubtedly, much obscurity has enveloped the literature devoted to them, consequent upon this confusion of terms.

Molluscum contagiosum is a contagious disease, confined to the sebaceous glands, situated, according to Dr. C. Boeck, of Christiania (*Vierlkljahresschr. für Dermat. u. Syph.*, 1875, part i., quoted from London *Lancet*, August 7, 1875), in the rete Malpighii, whose cells, undergoing a peculiar degenerative change, constitute the pathological characteristics of the disease. The accumulation of these cells gives rise to tumors as large as or larger than peas, whose contents may be expressed through the orifices of the ducts, at their summits. On the other hand, molluscum fibrosum or fibroma molluscum, as it will be called in this article, is a new growth of fibro-cellular tissue, and may be with propriety classed with the fibromata (Billroth, "Surgical Pathology," p. 564, American edition; Rindfleisch, p. 373, vol. i., "Pathological Histology," "New Sydenham Society Translations").

In using the term molluscum contagiosum, to indicate the first-named set of tumors, and in designating as fibroma molluscum the affection of which the cases about to be related are examples, Rindfleisch, Fox and others, while attaining greater accuracy of definition, also enable the student to commence his observations without embarrassment.

The following two cases have been thought to present sufficient points of interest to justify their being placed upon record:

Case I.—St. Joseph's General Hospital, June 10, 1875. Timothy Lyons, Irish, fifty-six years old, twenty-seven years in America, of slight frame, five feet four inches in height; has never weighed more than one hundred and fifty pounds, at present time would weigh much less (even allowing for loss of left lower extremity, which was amputated above the middle of the thigh, in consequence of injuries received from the caving in of a sand-bank, five years ago); unmarried; eyes blue-gray, hair dark. His father died at sixty years, "purging and vomiting blood." His mother died of consumption. He has an impression, which, however, cannot be greatly relied upon, that it has been about twenty years since there first appeared upon the radial surface of his right forearm a small tumor, which is now about the size of a pullet's-egg. Ever since then, he says, he has noticed the appearance of multitudes of small tumors, continually increasing in dimensions. At the present time, the surface of his body, especially superiorly, is dotted over with countless numbers of these tumors, varying in size from that of a canary-seed to that of a pullet's-egg, the great majority approximating the smaller dimensions, the one on the right wrist being much larger than the one next in size. He asserts that, once having appeared, they never go away.

Over the scalp are scattered several largish ones, whose surfaces are, for the most part, hairless. Over the forehead, cheeks, and chin, are distributed hundreds of smaller ones, the largest of these being of the size of a pea; the nose and ears remain unaffected. About the eyebrows are a few larger ones, giving the patient, to some extent, the peculiar leonine expression. Over the breast, back, and abdomen, are numerous tumors of different dimensions. Upon the sound lower extremity there are a few smaller ones; but the stump, to the eye, is not the seat of any. There is, however, some redundance of flap; but, according to the statement of the patient, this has existed ever since the amputation was done. A single small, abruptly circumscribed tumor is present in the skin of the scrotum.

The skin of these tumors appears, for the most part, perfectly normal in color; in some of the larger ones, which are more or less pedunculated, or conical and nipple-shaped, there is a certain amount of deep coloration, from hyperæmia. From the integument of those upon which the experiment has been made (the larger ones), plugs of sebum from the enlarged follicular canals may be expressed, it being plainly evident that these have no communication with the new growth.

The tumors appear to occupy different degrees of profundity in relation to the skin. The very small ones seem to be directly in the derma; to the eye, they present an appearance as if multitudes of very small shot were imbedded in the skin; when the finger, however, is applied to them, they offer almost no resistance, seeming to shrink away before it. As they increase in size until they may be grasped, the typical characters of fibroma molluscum become plainly apparent, and the sensation is imparted to the fingers of a loose, gelatinous structure, with cords or bands traversing the masses in diverging directions, principally radiating from the base.

The least in size are, without exception, sessile: of the larger ones, the greater number are conical. Both nipples are pervaded with the new growth and considerably enlarged, one distinctly lobulated. Upon his back are two unmistakable *nævi verrucosi*, which are also the seats of molluscous growth; they differ markedly from the others, presenting the decided optical appearances of *nævi*, but are devoid of hair, and pigmented (brown): upon his arms and shoulders the tumors become more prominent, standing up like inflated tips of glove-fingers; these, at their free extremities, are strikingly soft, and the finger, pressed down in the direction of their axes, seems to pass through the derma and into the subcutaneous cellular tissue. He suffers no inconvenience from these, other than from their mechanical interference.

In addition to these tumors of fibroma molluscum, there exist, scattered over this man's body, a second and distinct set of tumors, entirely subcutaneous, generally about the size of a coffee-grain, but in one instance as large as an almond, hard and resistant to the touch, slipping about under the skin freely, within certain limits and directions, more or less painful, both spontaneously and to pressure (a stinging pain, as from the pricking of a pin), having no apparent connection with the derma, and evidently false neuromata; these in considerable numbers are distributed principally over the head and extremities. The largest of them is situated upon the inner aspect of the left arm, over the median nerve, capable of being very slightly moved laterally, and gives rise to much pain. There is another upon the left forearm, slightly painful, movable laterally, and situated over the ulnar nerve. Others are irregularly scattered. There is a painless enlargement of the distal extremity of the left ulna, which the patient cannot account for.

He complains of pruritus, and his sides and abdomen are streaked with the marks of his finger-nails. The mucous membranes, so far as can be ascertained, are uninvolved. He is not strong, and, although in the hospital nominally for the treatment of dyspepsia, is really here for shelter and support. He declares positively that his father was affected as he is, and describes a tumor that hung from his ear and "weighed about two pounds." He had a great many of them, and consulted surgeons, who advised him to let them alone. The only other member of his family similarly affected is Timothy's sister, who is here reported as Case II.

Case II.—Ellen Lyons, domestic servant, aged fifty years; Irish, unmarried, blue eyes, dark complexion, dark hair, small frame; menstruated for the first time at twenty years; menses ceased five years ago, but were always normally performed. She claims to have always been hearty until one year ago; she now suffers from "hoarseness and indigestion, and burning pain under the skin of both thighs," and has bleeding piles. Scattered over her body are numerous tumors of fibroma molluscum, but not near so many as upon her brother. The largest are not much larger than hazel-nuts; they are most prevalent upon her back. She declines to allow an examination of her trunk, but states that there are perhaps a dozen about her waist and back. Upon her face and extremities there are a few. When large enough, they show a tendency to pedunculation; the finger pressed upon them seems to penetrate the corium as in Timothy's case; they are soft and doughy to the touch, and are painless, offering no inconvenience. No firm, subcutaneous tumors can be discovered, as upon Timothy. She declares that she has had these tumors ever since infancy, and that, according to her recollection, they have not increased in size. She is also positive in her statement that her brother has had his tumors since childhood. She clearly remembers the tumors similar to her brother's and her own upon her father.

June 15*th.*—To-day, under local anæsthesia, a tumor of each kind was removed from the palmar surface of Timothy's left wrist, their proximity to each other enabling a single incision to include them both. The neuroma is elongated, as large as a grain of Indian-corn, and pear-shaped. It was encapsulated, hard, and resistant; its connection with a nerve was not apparent. The fibroma molluscum was soft, gelatinous, adhering closely to the finger when taken up. Its size was that of a large pea. These were placed in alcohol, and, when sufficiently hardened, sections of them were made, stained with carmine, and placed under the microscope. The neuroma was made up of a dense fibrous tissue, with a rather free distribution of spindle-cells. Its characteristics were those of ordinary fibroid tumors: no traces of nerve-filaments could be made out: in fact, neither from the microscopic nor clinical appearances of this tumor could *it* be diagnosed as a false neuroma. This diagnosis was reached through the observation of other similar tumors, whose connection with nerves was unmistakable, but of which specimens could not be obtained, as there would have been necessitated an additional operation, to which the patient would not consent.

The molluscous tumor presented the characters usually ascribed to it by late writers, and closely corresponding to the admirable delineation of the growth to be found in Neumann's "Hand-book of Skin Diseases," American edition, p. 373, and described as consisting of "young, gelatinous connective tissue, which forms large interstices, containing a yellowish, expressible, albuminous fluid and traversed by a delicate fibrinous net-work." In the present specimens, the interspaces are filled to a great extent with ordinary round cells, and vary in size from small, circular nests of cells to larger ones of less regular outline. According to the best authorities and as seems natural, "the anatomical conditions found differ essentially, according as to whether the tumor is a small or a large one, or is in an early or advanced stage of development, and finally even in different parts of the same tumor." The essential condition is, however, a more or less loosely arranged connective tissue growth, whose interstices are filled with albuminous fluid and cells, and are traversed by finer bands of connective tissue, and developed primarily, for the most part, from the deeper layers of the corium (Rokitansky), and to some extent, probably, from the connective-tissue framework of the subcutaneous fat-lobules (Virchow, Kaposi; Hebra, "Diseases of the Skin"), but occasionally, at least, from the papillary body (Rindfleisch). In the present case the papillary layer of the skin was intirely uninvolved.

The contemplation of connective-tissue new growths, as they merge, the one into the other, is accompanied by a bewildering sense of uncertainty, for, while clearly-marked differences may be observed between typical specimens of either variety, these dissimilarities grow less and finally imperceptible, as the type is departed from. Thus, we see Billroth and Rindfleisch and others classify the tumors under consideration along with ordinary fibromata, or connective-tissue tumors, while at the same time authors cannot resist the conclusion that there exists between them and Oriental elephantiasis a relationship. This conclusion, difficult to understand from an acquaintance with such forms of fibroma molluscum as the two cases just related afford, becomes irresistible when some highly-modified forms are met with. When molluscous tumors have attained a large size in certain situations, weighing several pounds and hanging down as pendulous tumors, especially from the labia majora or minora, or scrotum, their clinical and histological characters cannot be distinguished from certain forms of elephantiasis arabum in similar locations. Kaposi (Hebra, on "Diseases of the Skin," "New Sydenham Society Translations," vol. iii., p. 337) declares that, "in its internal structure, molluscum fibrosum resembles the tissue of elephantiasis arabum mollis" and that the pendulous tumors of the female genitals which are known as elephantiasis arabum are "exactly similar to molluscum." He is of the opinion, however, that "the tissue of elephantiasis arabum" (mollis) "contains a greater quantity of cells, which are also more uniformly arranged, is much more succulent, and, especially, here and there, has a much coarser net-work, the spaces of which sometimes form large cavities containing a fluid (lymph) rich in cells."

Rindfleisch states that the superficial lymph-containing spaces in this form of elephantiasis arabum are ampulliform dilatations of the lymphatic vessels, "since they are lined with the well-known mosaic of endothelial cells." This condition, I believe, has not been observed in cases recognized as fibroma molluscum, and, if absent in them, will afford a well-marked anatomical difference; but it is not unlikely that further investigation of the more extensive forms of the latter affection will reveal a similar arrangement.

Occasionally associated and apparently identical with fibroma molluscum is a peculiar redundancy of skin, a condition in which rolls of integument fall about the person in a mass of loose, soft, dewlap-like tissue. It is a rare complication of this rare disease, and medical literature affords but occasional examples of it. In the London *Lancet*, March 22, 1873, Mr. George Pollock relates the case of a woman aged thirty-three years, subject since childhood to numerous tumors of fibroma molluscum. The most remarkable and largest commenced on the right side of the neck, and extended below the umbilicus. It consisted of a long, thick, pendulous flap of skin, about eighteen inches in length. Its anterior surface was thrown into several folds, giving the appearance of coils of intestine. The growth was removed and found to be plentifully supplied with blood-vessels. The tumor was due to excessive hypertrophy of connective tissue, and partly to abundant cell-growth, occupying interspaces between the bands of fibrous tissue. Mr. Pollock again, March 2, 1875, exhibited, before the Pathological Society of London, photographs of another patient, who had "a sort of molluscum fibrosum." The patient was a woman, aged twenty-five years, in whom the tumor began at the age of six years. It consisted chiefly in an enormous hypertrophy of the skin of the thigh, which hung in large, pendulous folds. Mr. Pollock remarked that these growths were much more vascular than was usually supposed, the vessels being long and tortuous, and in order to prevent hæmorrhage he had been obliged in a former case (just quoted) to resort to the plan of ligating the base of the parts removed, very carefully, before making the incision.

In the *American Journal of Medical Sciences* for January, 1875, Dr. Michel argues for the essential identity of growths of the nature of the latter, and of fibroma molluscum, and calls attention to a case reported by John Bell in his "Principles of Surgery," where, from the back of the head "descends a great voluminous growth of skin, which hangs over the breast and belly to the length of a yard and a half, like a bundle of intestines;" besides another enormous roll of skin upon this patient, the face, arms, etc., were covered with tubercles (fibromata).

Cases such as these accurately fit the description of a condition termed by Kaposi, in Hebra on "Skin Diseases," elephantiasis teleangiectodes, save that, except, perhaps, in the one last quoted, the development of blood-vessels would seem not to reach such an extreme degree; and it becomes difficult to confine within the range of a definite appellation growths such as these; for we find the vascular new growth preponderating as we extend our observations, until such terms as tumor cavernosus, venous telangiectasis, become necessary to designate them.

The truth is, that, as observed by later pathologists, neither clinically nor histologically can the line be drawn so that the observer can take the series of connective-tissue new growths and mark out where their preponderating characteristics begin and end. Understanding this, it is legitimate for him to select certain peculiarities and characters, as types, with which comparisons may be made, and from which any given condition may be named.

The two cases forming the basis of these remarks afford examples of typical fibroma molluscum, with, however, in addition, on the part of the man, an unusual complication; they also present several interesting points of clinical history.

In the first place, they seem to corroborate the statements of writers as to the commencement of this affection either congenitally or in early childhood; for, while Ellen is positive that its existence upon her dates from early childhood, she also seems equally sure that Timothy's tumors date from a like age: and here she would naturally be much more trustworthy than her brother, since her sex would cause her to be more impressed with any personal blemish; whereas, Timothy, not being blessed by Nature with a comely exterior, probably gave no attention to the matter until certain subjective symptoms of pain brought to his notice the painful tumors at about middle life, thus enabling him to fix a date in his mind, which the other painless ones failed to do.

In accordance with the observation of Hebra, both brother and sister seem to be of somewhat feeble mental capacity, and are both below the average height and weight, although symmetrically developed. In them, the disease appears to have been inherited from their father. This heredity has not been established for the disease generally; but Virchow reports the case of a patient whose father, grandfather, brothers and sisters had similar tumors (Hebra, "Skin Diseases," vol. iii., p. 341). I also find recorded in the London *Lancet* for March 22, 1873, by Dr. John Murray, three cases of fibroma molluscum occurring in the same family, in children of first cousins; one of these children was deaf, and the other two betrayed certain "mental and moral symptoms." In the *Archives of Dermatology*, July, 1875, Dr. Octerlony relates the case of a negro woman, with fibroma molluscum, whose youngest child was likewise affected. These cases afford pretty conclusive evidence that heredity may play a part in the etiology of the affection.

There remains to be noted in Timothy's case the coexistence of multiple molluscous tumors and multiple false neuromata. I have been unable to find recorded an analogous case, but regard this condition as the expression of a constitutional predisposition to connective-tissue new growth pervading the man's body, and would expect to find in his deeper parts tumors scattered through his connective tissue. (There was no history of antecedent venereal disease.)

Clinical Records from Private and Hospital Practice.

I.—*Two Cases of Intestinal Obstruction, with some Remarks on the Difficulty of the Differentiation of those Varieties of Obstruction calling for the Operation of Laparotomy.*

By James S. Green, M. D., Elizabeth, N. J.

Annie M., aged eleven years, on the 23d of March, 1875, complained of pain in her abdomen, which she said was like the pain of colic, of which she had been a subject for a long while; she, however, went to school, but soon came home, with violent pain in the umbilical region, accompanied with constant nausea and frequent vomiting.

March 24th.—Her mother used the remedies she had employed in former attacks of colic, and, the little patient growing worse, I was called March 25th about 11 A. M., and found pulse 120, temperature 100°—tenderness over the whole abdomen, some tympanites, obstinate constipation, incessant vomiting. Diagnosed intestinal obstruction. Ordered large injections of warm water *ad plenum*, repeated every two hours until my return, hot fomentations, and one-sixth of a grain of morphia and one drop of acid. hydrocyan. dilut. every hour as long as pain was extreme. 8 P. M.—Has had four injections of warm water, which brought away a large amount of hard fecal matter. Pain is still violent about umbilicus, nausea continues, tympanites less. Pulse 130, temperature

104°, respiration 14. Gave another enema of warm water *ad plenum* myself, to be assured that it was thoroughly administered. Nothing came away but the injection. Umbilical pain and vomiting still continue. Ordered morphia sulph. grain one-fifth, acid. hydrocyan. dil. gtt. j, in cracked ice every two hours, turpentine-stupe over the belly; raw-beef and flaxseed-tea enemas every four hours; champagne occasionally. During this day it was learned, for the first time, from the little girl's playmates, that on the 23d of March while "coasting" she had been thrown with violence against the post of a gate, through which she was passing, striking her right hip; and from the time of this accident dates her illness, the autopsy verifying the supposition.

26*th.*—Pulse 120, temperature 100°, respiration 14. Pain less, vomiting still frequent, dark bilious matter, restless night, constipation. Has retained raw-beef enemas, but no nourishment by the mouth; same treatment continued.

27*th.*—Restless night; umbilical pain continues, tympanites increased. Nausea excessive, pulse 120, temperature 101°, respiration 12; treatment same.

28*th.*—Repetition of yesterday, with increasing weakness.

29*th.*—Pulse 125, temperature 98⅘°, respiration 15. Has had two slight evacuations from bowels, principally remains of beef-injections. At 10 P. M., less pain and nausea, pulse 118, temperature 98⅗°, same treatment.

30*th.*—Slept well all night, no nausea or vomiting, less tenderness and tympanites; bowels moved during the night. Pulse 115, temperature 98⅗°; respiration 11.

31*st.*—Has had good night; ate cream-toast for breakfast, pulse 105, temperature 98⅗°. Ordered half quantity of morphia and discontinued turpentine-stupe—no tenderness on pressure. At this point patient seemed to be improving and continued to do so until April 2d. Violent umbilical pain returned during the night, with a great deal of tenesmus but no evacuation; tympanites increased. Pulse 120, temperature 101°, respiration 28. Ordered enema of warm water, morphia sulph. grain one-fourth every two hours. At 8 P. M., pulse 108, temperature 101°, respiration 12; umbilical pain violent during day, large fecal vomiting frequently.

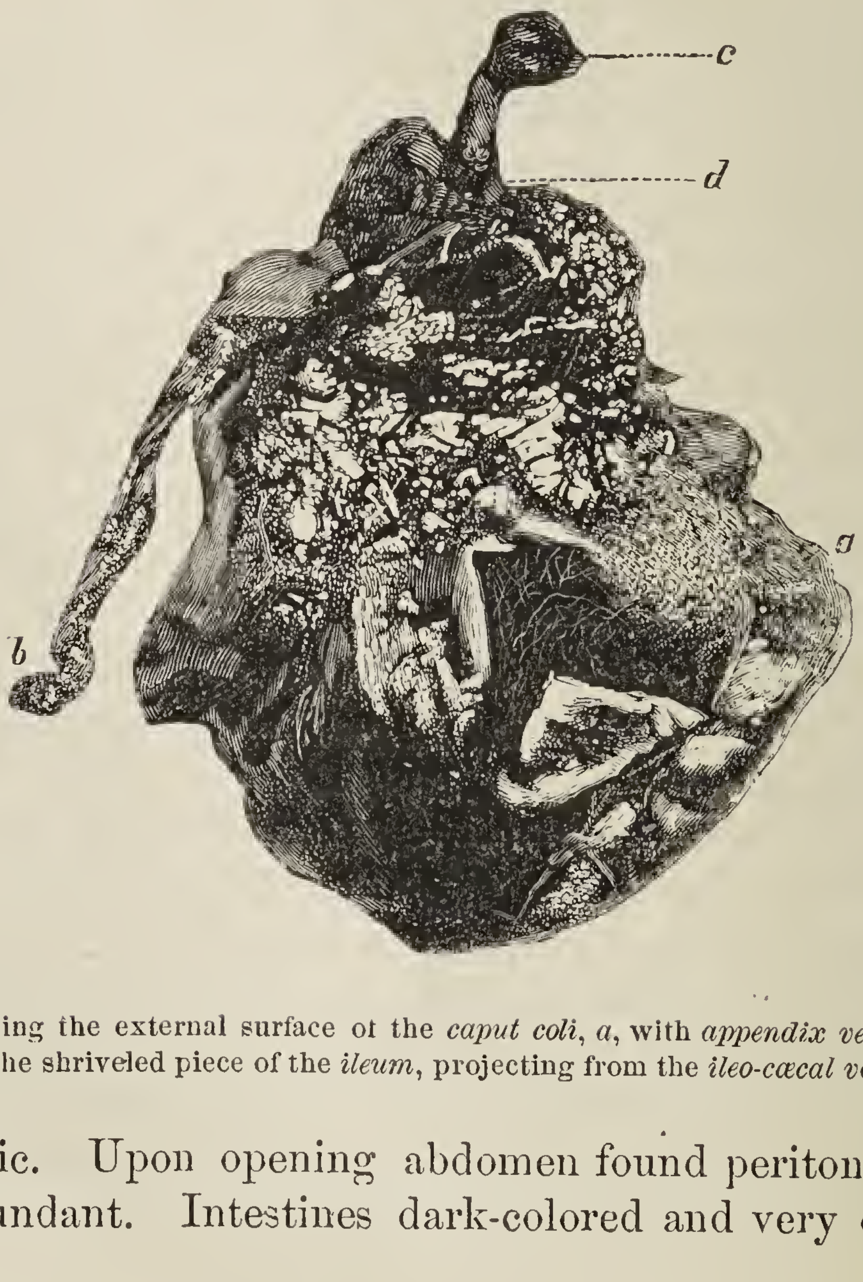
April 4th.—Has had fever and delirium, fecal vomiting and increased tympanites. Pulse 120, temperature 102°, respiration 12.

5th.—Same as yesterday, with increased weakness, and a peculiar appearance presented by surface of the abdomen. It was marked by transverse rugæ—eight in number.

6th.—Pulse 115, temperature 104°, respiration 12, fecal vomiting, delirium, septicæmic breath.

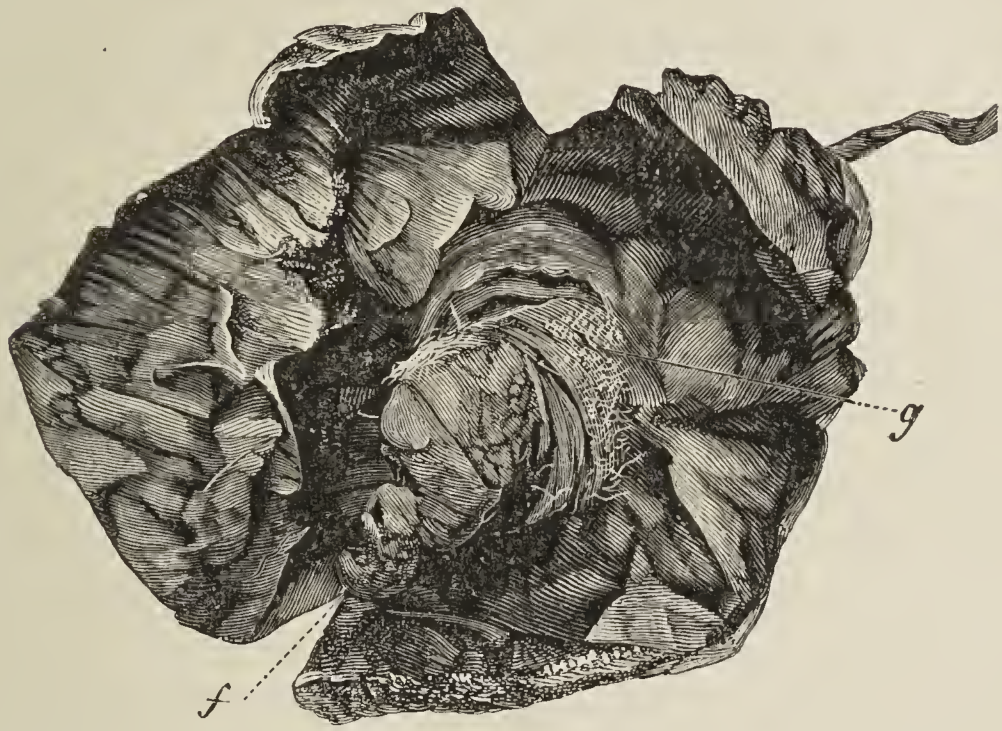
9th.—Last two days the same, with increased weakness. Nothing retained by mouth ; nourished entirely by raw-beef enemas. Pulse 110, temperature 95°. And thus, with varying symptoms of septic poisoning, she died at 2 P. M., April 12th, twenty days after the occurrence of the injury.

Autopsy, Fifty-six Hours after Death. Body well frozen. Great emaciation, skin discolored, of a leaden hue, abdomen tympanitic. Upon opening abdomen found peritoneal adhesions abundant. Intestines dark-colored and very offensive.



No. 1.—Showing the external surface of the *caput coli*, *a*, with *appendix vermiformis*, *b*, and *c*, the shriveled piece of the *ileum*, projecting from the *ileo-cæcal valve*, *d*.

Found that eight inches of the *ileum* had *telescoped* through the *ileo-cæcal* valve, into the *caput coli.* Having removed the specimen, and after hardening it in carbolic acid and absolute alcohol, two photographs were taken of it, which are here presented.



No. 2.—Showing the internal surface of the *colon* and inverted *ileum*, *E*, projecting through the *ileo-cæcal valve*, *g*.

It is apparent, from the specimen furnished by the autopsy and the history of this case, that the invagination was the result of the violent blow against the gate-post, while "coasting" rapidly down a hill. The force exerted being in a direct line with the axis of the ileum, and the colon being brought suddenly to a stand-still, the small intestine passed through the ileo-cæcal valve and took its position within the cavity of the cæcum.

Mrs. Eliza R., aged sixty-four years, has been subject to pain in the epigastrium, coming on two or three hours after eating, for two years.

October 9, 1875.—She ate a hearty lunch of sliced tomatoes, pears, and doughnuts; in about three hours was seized with violent pain in the epigastrium, supposed to be dyspepsia. The pain was followed by extreme nausea and vomiting. After being relieved by free emesis, she passed a tolerable night.

10*th.*—About 11 A. M., seized with violent pain, with nausea and vomiting. I saw the patient for the first time at 10 P. M., in consultation with Dr. J. S. Crane (whose patient she was). Found pulse 120, temperature 100°. Constant nausea and vomiting of greenish matter, skin warm, some tympanites, no tenderness on pressure except at the epigastrium, to which place she refers all her pain; obstinate constipation, occasional hiccough. Intestinal obstruction diagnosed.

TREATMENT.—Hot fomentations, large enemas of warm soap-water. Morphia sulph. gr. one-fourth, acid. hydrocyanic. dil. gtt. j, every two or three hours, as long as pain continues.

11*th.*—Enemas brought away a small quantity of hard fæces. Has been drowsy all night, vomiting continuing at intervals; tympanites and pain slight. Pulse 130, temperature 99°. During day pain has steadily increased, vomiting frequently; unable to retain any nourishment by the mouth.

12*th.*—Pulse 125, temperature 99$\frac{3}{5}$°. Pain at the epigastrium at intervals very violent. No marked tenderness on pressure, or tympanites. Fecal vomiting frequently repeated. In the afternoon an offensive discharge from the bowels, bloody, and having the smell of the washings of meat.

13*th.*—Passed very restless night, frequent fecal vomiting. Pain at intervals in epigastrium; movement of bowels composed of small, round, fecal matter. Pulse 115, temperature 99°. Hot fomentation continued; morphia as required by pain. Raw-beef and flaxseed-tea enema every four hours.

14*th.*—Passed more comfortable night. Slept at intervals nearly all night. Vomiting ceased after a profuse discharge of fecal matter from the mouth; pain in epigastrium gone, only soreness remaining. Has retained cream and lime-water by the mouth. Bowels have moved slightly.

15*th.*—No nausea; some appetite; large natural alvine evacuation, since which time patient has steadily improved.

The opinion is ventured that in this case of Mrs. R. there is a stricture of the small intestine, and that some of the ingesta becoming lodged in the constricted portion of the gut, induced the alarming symptoms above detailed, and that, after the plug had been softened and carried through, the evidence of intestinal obstruction was removed.

It is also to be remarked in this case that there was an absence of marked tympanites and tenderness upon pressure; also, that the pain, very violent at times, was localized in the epigastrium; that but small quantities of morphia were required to produce sleep.

In the case of Annie M., where the symptoms were due to an incarcerated intestine, the pain was constantly referred to the *umbilicus*, as in strangulated hernia; the tympanites was marked, and there was no marked tenderness on pressure, not even over the right iliac region, and that large quantities of morphia were borne well and constantly called for by the patient. In her case, there can hardly be a doubt that, if *laparotomy* had been performed within a few days of the accident, her life would have been saved. This opinion is confirmed by the endurance she evinced, her age, the length of time she lived after the accident, and the readiness with which the obstruction could have been removed by the operation; while in the case of Mrs. R., if laparotomy had been attempted, the danger of shock and peritonitis would have been added to the difficulty, and the probability is that, instead of enjoying life now, her death would have contributed to bring the operation into disrepute.

In a case of constricted intestine plugged up, as in Mrs. R.'s case, the operation of laparotomy could afford no relief. Yet, in this instance, we had obstinate constipation, violent pain, great nausea, excessive fecal vomiting, great exhaustion, and many of the urgent symptoms which call for surgical interference. It is to be remarked that pressure upon the abdomen did *not* indicate by tenderness or pain the spot at which the lesion existed in either case.

Would Prof. Seguin's thermoscope indicate the spot if placed upon the abdominal surface? Prof. Sayre informs me that, in cases of sacro-iliac disease, so obscure that all other means of diagnosis have failed, this little instrument has indicated the place of lesion.

As Prof. Erskine Mason, in his paper on this subject, in the *Medical Record*, July 10, 1875, justly remarks that, although our text-books clearly set forth the symptoms belonging to each class of intestinal obstruction, yet, "in practice, how often are many or all these symptoms presented in a single case, so that all the acuteness of the most skilled diagnostician fails to disentangle them or read them aright!" I wish to call particular attention to the localization of the abdominal pain in these two cases—in one it was referred to the *umbilicus*, as in strangulated hernia, and in the other to another portion of the abdomen—and to ask the question, Is this pain at the umbilicus, in cases of intestinal obstruction, diagnostic of intestinal incarceration?

If this point were clearly determined, we would have, then, one good reason, in these cases accompanied by umbilical pain, for surgical interference.

If, by the recital of the cases above, the more learned and experienced surgeons shall be induced to place before the profession the way in which it may be able to discriminate which cases of intestinal obstruction require laparotomy, and which do not, the object of this paper will have been attained.

II.—*Rupture of the Urethra.* By J. B. Hamilton, Assistant Surgeon, U. S. A., Fort Colville, Washington Territory, September 15, 1875.

In the foreign selections of the London *Medical Times and Gazette* for June 19, 1875, an article appears from the *Gazette Hebdomadaire* of June 4th, wherein is reported a discussion by the Société de Chirurgie upon the following question:

"What conduct should the surgeon pursue in cases of violent contusion of the perinæum, with rupture of the urethra, without external wound, but complicated with retention of urine?"

This question was illustrated by the recital of several cases, mainly treated by perineal incision.

I take the liberty of sending the notes of a case of rupture of the urethra, which was treated with ice-bags to the perinæum, the aspirator being used for the relief of the retention of urine. This case recovered speedily, and with so little trouble as to leave nothing to be desired, and, as far as a single case can, it goes a long way toward decisively answering the question above propounded.

The aspirator used was of Tiemann's manufacture, and was similar to the one figured on page 538 of the London *Medical Times and Gazette*, May 15, 1875.

CASE. *August* 20, 1874.—Was called at 10 A. M., to see Mike Cronin, aged nineteen years, an Irishman of spare habit, quite tall and thin. On arrival, found that he had been hauling wood, and the team becoming frightened by a stick falling upon them, ran away. He was thrown upon the ground just in front of the fore-wheel of the wagon. He fell upon his back, with his legs abducted; the wheel struck forcibly the perinæum and passed over the left groin. Assistance being near at hand, he was carried to the house of a farmer for whom he was at work, and was visited by me within an hour and a half.

On carefully examining him, there was no serious injury perceptible, but he complained of much pain in the groin and hip. One-half grain of sulphate of morphia was administered.

August 21*st*, 9 A. M.—Visited patient, and found him suffering very great pain from retention of urine; the bladder was considerably distended, and on inquiry it was found that no urine had been passed since the receipt of the ininjury, and some blood had escaped from the penis. The introduction of a No. 7 catheter was attempted, but when the point of the catheter arrived at the membranous portion of the urethra it passed no farther into the urethral canal, but slipped easily out into the connective tissue of the perinæum on either side. The point of the catheter was quite obtuse, and could not have caused the laceration, as no force was used in its introduction. Copious hæmorrhage followed the withdrawal of the catheter. A second dose of sulphate of morphia was administered, and the patient was removed to his home two miles and a half distant, and an ice-bag applied to the perinæum. At one o'clock Dr. P. Fenity, of Kane, Ill., met me in consultation, and it was agreed to open the bladder by perineal section. While we were discussing this, it occurred to me that my friend Dr. C. Armstrong, of Carrollton, Ill., had an aspirator, and he was telegraphed for. He arrived in company with Dr. E. B. Hobson, of Carrollton, Ill., at 5 P. M. The diagnosis of rupture of the urethra was confirmed and the needle of the aspirator was at once introduced through the abdominal parietes into the bladder. Thirty-six ounces of dark urine were drawn off through the tube and the patient at once experienced great relief. No anæsthetic was given, but no pain was complained of. No anodyne was administered after the operation, but the patient soon fell into a quiet sleep. The ice-bag to the perinæum was continued.

22*d*, 9 A. M.—Patient in distress from distention of the bladder, and begged me to use the aspirator again, but, fearing to do so too frequently, I refused. The introduction of a No. 8 catheter was attempted, but without success, and he was stimulated with brandy and beef tea, and exhorted to exercise patience until afternoon. At 4 P. M., with the assistance of Dr. Fenity, thirty-two ounces of urine were again drawn by the use of the aspirator, immediate relief being experienced. An anodyne was administered.

23*d*, 8 A. M.—Much the same as on the day before, and at 4½ P. M. the aspirator-tube was again introduced, and thirty-four ounces of urine withdrawn. Dr. A. B. Allen, of Kane, Ill., was present and assisted. The ice-bag was continued.

24*th*, 9 A. M.—The gentle introduction of the catheter was attempted without success, and in the afternoon thirty-two ounces of urine were again drawn by means of the aspirator. An anodyne was given at night.

25*th*, 9 A. M.—Catheterization was not attempted, and thirty ounces of urine were drawn by aspiration at 5 P. M. The ice-bag to the perinæum was discontinued.

26*th*, 9 A. M.—A few drops of urine had passed the natural channels, and by very gentle efforts a No. 7 catheter was introduced into the bladder. From this time the urine was drawn twice daily by means of the catheter, until August 28th, when the patient passed the urine naturally and without difficulty. He made a rapid recovery, and was, when last heard from, quite well. No peritonitis was threatened at any time, but an anodyne was administered each night, except the first, for its prevention.

Notes of Hospital Practice.

BELLEVUE HOSPITAL, NEW YORK.

Treatment of Compound Comminuted Fractures.—There are few injuries which give the surgeon more trouble to successfully treat than compound comminuted fractures. This results mainly from the fact that it is necessary to keep the fragments in position, while the discharges, which are usually free, must be carefully removed. The history of the following case illustrates the matter: A patient received a compound comminuted fracture of the tibia and fibula about the middle third. The opening was immediately sealed up, and remained so till pus formed beneath. Ice-bags were placed around the leg till the active stage was passed. The limb was then swung by means of a cradle, but in this position it was impossible to keep the fragments at rest. It was then put up in plaster, with fenestra for the escape of the pus; but after a day or two the swelling subsided, and left it loose in the plaster case. The plaster-dressing was then removed, and the limb placed in a fracture-box surrounded with bran. The advantage of the bran-dressing was, that equable pressure could be made upon the leg, and at the same time the discharges be absorbed by it and removed, with the amount of bran they saturated, thus leaving the extremity undisturbed.

The disadvantage of the bran-dressing is, that the patient must remain on his back, and not be allowed to change the position of the limb. When all swelling had subsided, the plaster-of-Paris dressing was again applied, and the patient allowed to sit up.

Extravasation of Urine; External Perineal Urethrotomy; Death.—The patient entered hospital at 3 A. M., suffering from retention of twenty-four hours' standing. It was impossible to pass a larger instrument than a filiform bougie. Dr. F. J. Kearney relieved the retention by aspiration. The needle was inserted in the median line an inch above the pubes, and twenty-seven ounces of bloody urine withdrawn. After three hours the bladder again became distended, and twenty-four ounces of the same colored urine were removed by the aspirator. During the next day two filiform guides were introduced, and allowed to remain for four hours. After these were taken out, No. 2 gum-elastic bougie was passed, and retained for three hours. The stricture was then dilated by means of steel sounds, Nos. 6, 7, 8, 9, 10, 11, and 12, being consecutively introduced with ease. Two days afterward extravasation of urine took place, and external perineal urethrotomy was practised. After the operation an additional extravasation took place into the perinæum, and the patient died of exhaustion. At the autopsy a stricture was found three inches from the meatus, and another one in the membranous portion of the urethra. An abscess was found in the cortical portion of the left kidney.

MEDICAL DIVISION.

Abscess of Liver opening into the Pleura and Bronchi.—The patient entered hospital complaining of diarrhœa, with pain in the chest. On examining the chest, dullness was found at the lower portion of the right lung. The liver was considerably enlarged. Some time afterward he died, and at the autopsy the right pleural cavity was found to contain a large amount of pus, with a few threads of gangrenous tissue. The lung was bound down to the diaphragm by adhesions. The liver contained a large abscess, and on removing it the pus flowed into the pleura. The explanation of the case was, that originally there was an hepatic abscess which opened into the pleura, and at the same time into the bronchi by means of the adherent lung.

The mucous membrane of the large intestines from the anus to the ileum was the seat of ulcers with gangrenous bases. These ulcers were from half an inch to an inch in extent, and separated from each other by portions of healthy mucous membrane.

NEW YORK FOUNDLING ASYLUM.

Urticaria treated by Copaiba.—Dr. S. Henry Dessau has had under his observation in this institution two cases of chronic urticaria, which resisted different forms of treatment, but under the influence of copaiba rapidly improved. The first case occurred in a hemiplegic girl, and the other in a boy who had previously been attacked with spasmodic laryngitis. They had both been treated respectively with hyposulphites, rhubarb and soda, arsenic and iron, sirup of the hypophosphites, and cod-liver oil. Both children were cared for by the same nurse, and, in the opinion of the nurse, the children were better when taking no medicine. Acting on this suggestion, treatment was for a month discontinued, and at the end of that time they were much worse than ever. Dr. Dessau then resumed treatment with the balsam of copaiba in drop-doses, using the following form :

℞.	Bals. copaibæ,	gtt. xvj.
	Syrup. acaciæ,	℥ ij.
M.	Teaspoonful three times a day.	

After both the children came under the influence of copaiba they improved rapidly, and since that time have not had a relapse of the disease.

MOUNT SINAI HOSPITAL.

Treatment of Typhoid Fever.—Within the past year there have been treated in this hospital over sixty cases of typhoid fever, and out of these only one death occurred. This was due to perforation. The plan of treatment pursued is the antipyretic, and in this manner it is claimed that the mortality is less, and at the same time the patients do not suffer from delirium. Cold baths are employed when the temperature reaches 103°, unless it is contraindicated by some special reason. If the temperature is only 102°, or if the patient is debilitated, sponging the body with water is had recourse to. The aim of the treatment is to keep the temperature below 102°, and for this purpose it is necessary, if baths are employed, to repeat them every few hours in the more active cases, but, in the milder ones, from two to four every day may be sufficient. One of the most important features connected with this treatment is, that no delirium occurs during the night. In one case, where active delirium ensued, the patient was given a bath, and immediately the delirium disappeared. The internal treatment consists in the administration of quinine and whiskey, with appropriate agents for the control of the diarrhœa, and of these bismuth in twenty-grain doses has proved most efficacious.

Malignant Diseases of the Rectum; Relief afforded by Operation.—Two important cases of malignant disease of the rectum have been under treatment, and the relief afforded by removal of a portion of the cancerous mass renders them of special interest:

The first case was a woman, in whom the disease had advanced so far as to form an opening from the vagina into the rectum, and to include the right side of the sphincter ani. The patient was in such a deplorable state that for a year she had been unable to lie down, and rested during the night on her knees. Dr. Guleke removed as much of the mass as he could with safety by means of Simon's steel scoop, and since that time the patient has had but little discomfort, relatively speaking, being able to rest satisfactorily in bed. From the destruction of the sphincter, the patient suffers from incontinence of fæces.

The second case was also a woman. She had suffered from pain in the rectum and hæmorrhage from the bowels for two years. On examination with the finger, a projecting mass was discovered on the posterior wall of the rectum, about three inches above the anus. This mass was removed in the manner mentioned in the former case, and since that time she has been completely relieved, and imagines herself cured. The uterus is not involved as yet, but there are traces of the disease on the lateral and anterior walls of the rectum.

Malignant Disease of the Stomach; Apoplexy.—The following case presents some points of interest in the diagnosis of malignant disease: the patient entered the hospital suffering from gastric catarrh, together with darkening of the skin and marked cachexia. No abdominal tumor in the region of the stomach could be made out. The liver was enlarged, but not markedly so. The glands in the left axilla were notably enlarged, and apparently without cause. During the patient's sojourn in the hospital, he fell down, and remained unconscious for about ten minutes. After rallying slightly, it was found that he was paralyzed on the left side. Fourteen days after this he was seized with vomiting and purging of blood, and immediately afterward it was found that the cerebral symptoms were very much improved. He died on the following day, and at the autopsy it was found that the stomach was the seat of carcinomatous disease in the neighborhood of the pylorus. The retro-peritoneal glands were infiltrated with cancerous matter, and the thoracic duct was surrounded with enlarged glands, giving it the appearance of a string of beads. The brain contained an extravasation in the gray matter of the middle lobe on the right side. This was about an inch in diameter. There was also in the neighborhood a localized arachnitis.

The enlarged glands in the left axilla become of interest in the diagnosis of the disease when we consider that the thoracic duct, which was surrounded with cancerous glands, enters the left subclavian vein at the root of the neck. By it in all probability the neighboring lymphatics were involved. Another point of interest in regard to the treatment of apoplexy was evolved by the fatal turn of the case. Before hæmorrhage took place into the stomach, the sensorium was impaired, but afterward the mind became much clearer, proving that, although depletion can have no effect on extravasated blood, it may be of signal benefit in clearing the intellect or lessening the coma.

Proceedings of Societies.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, November 10, 1875.

Dr. Francis Delafield, President.

Peritonitis from Abortion; Death.—Dr. Finnel presented the ovaries, uterus, vagina, labia, and rectum, of a patient who had died from the effects of an abortion induced by a midwife whom she consulted. The patient was two months advanced in utero-gestation, and consulted a midwife for the procuring of an abortion. She was first given several doses of cathartic medicine, which produced severe purging, but no evacuation of the contents of the uterus. The midwife again visited her, and on that occasion instruments were used; shortly afterward she miscarried. Four days after the abortion, pain was complained of in the abdomen, and in three weeks from the date of the operation the patient died. She was first visited by a druggist, but two days before death she was seen by a regular physician. At the autopsy there was found to be marked tympanitis. The cavity of the abdomen contained a considerable amount of a sero-purulent fluid, and flakes of lymph were scattered over the peritonæum. There was general peritonitis. No sign of laceration of the os or cervix could be noticed, and in the cavity of the uterus there was no lesion to point to endometritis, or to indicate the site of the placenta.

There was in the left ovary a corpus luteum, but it was impossible to say whether it was that of menstruation or pregnancy. Externally the longitudinal diameter of the uterus was five inches; transversely it measured four inches. The internal measurement was three and a half inches; the weight was three ounces. The rectum and anus presented the evidence of hæmorrhoids.

Dr. Mary Putnam Jacobi asked if any signs of lymphangitis of the cervix were discovered. There were none. Considerable discussion took place as to whether there was sufficient *post-mortem* evidence to prove the existence of pregnancy, and the conclusion was that there was not. The evidence of the patient, however, and the existence of general peritonitis, were considered as conclusive proof that the uterus had contained an impregnated ovum.

Dr. Delafield said that he had recently seen the *post-mortem* examination of a woman who had been operated on for dysmenorrhœa by forcible dilatation of the cervix. Six days afterward she developed peritonitis which ended fatally. In that case there was no metritis, no endometritis, and only slight laceration of the cervix. There was no lymphangitis around the cervix.

Removal of Tape-Worm by Balsam of Copaiba.—Dr. Salvatore Caro presented a tape-worm, and recited the following interesting history of its removal by balsam of copaiba, after the failure of other agents. The patient was a man who had suffered from tape-worm for years, and had tried, with but little benefit, kossoo, pumpkin-seed, kamela, oil of turpentine, and male-fern. He had also a gleet of long standing, and for the treatment of this disease came under observation.

Dr. Caro was not aware, at that time, that he suffered from tape-worm, and he ordered, for the cure of the gleet, teaspoonful-doses of balsam of copaiba every two hours till it acted on the bowels, and, after that, to diminish the quantity. After the administration of the first dose the bowels moved freely, and in the stool there was found the whole of the tape-worm. Dr. Caro said that he was not aware of the remedy being administered to patients suffering from tape-worm, and had obtained the result by mere accident.

Dr. Briddon said that he had been usually successful with the ethereal extract of the oil of male-fern. His method of treating cases was to give a black draught twenty-four hours before exhibiting the remedy, and in the interim to feed the patient on beef-tea. Twelve hours before giving the male-fern he gave a dose of castor-oil. The preparation of male-fern that he used was the ethereal extract prepared by Merck, of Vienna. He had administered the fluid extract of male-fern, but had obtained no benefit from it.

Disease of the Testicle.—Dr. Briddon presented a testicle which he had removed from a patient, but was unable to say whether the disease was of the scrofular, syphilitic, or tubercular form. The patient was thirty-four years of age. Two years ago he had the testicle contused, and from this injury there resulted an inflammation which, after a period of three weeks, ended in suppuration. The discharge, which was of a fetid character, remained till the organ was removed. The patient did not complain of any special pain or discomfort, other than the continuous discharge of the offensive pus. On examining the organ before removal, the right scrotum was found to contain a lobular mass adherent to the scrotum. The spermatic cord was considerably enlarged. The operation of removal was performed on October 31st. On making section of the testicle, two cavities were found, containing about an ounce of exceedingly fetid pus. The cavities were about the size of a hickory-nut, and had been separated by a septum, which had broken down under the influence of suppuration. Dr. Briddon said, in his experience, it was better to remove diseased testicles corresponding to the one which he presented, for, in cases where a free opening is made to allow of the escape of pus, fungous granulations are liable to appear and resist treatment.

Post-Pharyngeal Abscess; Death from Asphyxia; Caries of Spine.—Dr. Gibney presented, on behalf of a candidate, specimens of spinal cord and heart, removed from a patient under the following circumstances: The patient, Alice A., entered the Hospital for the Ruptured and Crippled on July 19, 1875. She was then four years and four months old, and suffered from caries of the second and third dorsal vertebræ. In her early childhood she had been comparatively healthy, and the general family history was good. The patient had the appearance of having slight opisthotonos. No tenderness could be detected over the carious vertebræ, and there was no hemiplegia. On October 15th she was taken with spasm of the glottis, but after a time rallied. Between October 15th and November 5th she had several attacks, of different degrees of intensity. On November 7th another paroxysm occurred, which ended in death from asphyxia.

Post-Mortem Examination.—*Rigor mortis* well marked. Posterior to the œsophagus an abscess was discovered, but no opening was found in the œsophagus connecting with it. Starchy matter was found in the upper part of the œsophagus, the pharynx, larynx, and trachea, and the supposition was that the food was stopped by the pressure on the œsophagus and was forced into the larynx, and in this manner caused apnœa. The abscess was found to be connected with the carious dorsal vertebræ. The vertebræ involved were the first, second, and third. There was also pachymeningitis. The spinal cord showed signs of constriction. The heart was interesting, in showing a pervious foramen ovale, sufficiently large to admit of the passage of the tip of the little-finger.

Correction.—The specimen of bronchocele presented to the Society by Dr. Beverly Robinson, on October 13, 1875, should be credited to Dr. A. H. Smith. The case was under the care of Dr. Smith, but, not being then a member of the Society, he was unable to present it himself.

Stated Meeting, October 27, 1875.

Dr. Francis Delafield, President.

Malignant Tumor in Groin; Secondary Tumor in the Lungs; Alveolar Cancer.—Dr. Heitzman presented specimens of a malignant growth with the following history: A patient aged sixty-nine noticed for many years a wart in the groin, the size of a pea. Two years ago this was removed by cauterization with nitric acid. Some months afterward an ulceration was detected, and after eight months a growth of the size of the palm of the hand developed. This was removed, but in the following month tumors appeared, and the patient died two years after the first operation. A micoscopical examination of the growths in the groin proved them to be round-celled sarcoma. The tumors in the lungs were of the variety known as alveolar sarcoma. The points of interest in the case were, that Dr. Heitzman made the diagnosis of sarcomatous tumors in the lungs, from a microscopical examination of the sputa coughed up from the patient, and from the history of the case it would appear that at first the disease was cancer, but after removal it returned as a sarcoma.

Tumor of the Musculo-Spiral Nerve; Removal.—Dr. Briddon presented a tumor the size of a hen's-egg, which he had recently removed from a patient. The history was as follows: About twenty-five years ago the patient, a lady aged fifty-eight, suffered from severe pain on the posterior part of the wrist-joint. After a period of four years it began to radiate to the fingers below and to the forearm above. The pain was of a lancinating character and at times agonizing. It was suggested to try faradization, and while making the applications a tumor the size of a billiard-ball was discovered in the axilla. Under the process of faradization the tumor increased in size. When traction or pressure was made upon the tumor, the pain was very much increased. No anæsthesia or paresis could be detected, and it was decided to remove the growth, and for this purpose an incision was made longitudinally in the middle of the axilla, and the sheath of the tumor exposed. The internal cutaneous nerve was found along one side and the ulnar nerve along the other side; both of these nerves could be separated from the tumor without difficulty.

On examining the tumor carefully, the musculo-spiral nerve could be seen to terminate in the tumor both above and below, and on inspection after removal of the growth it was found to consist of two or three small cavities. Dr. J. W. S. Arnold examined the specimen microscopically and reported that it was a myxoma. The nervous tissue was completely replaced by this growth. Below the tumor nervous tissue could be detected, and also immediately above it, but in the tumor itself there was a complete substitution of the nervous matter by the neoplasm. Dr. Briddon said that in 1859 he removed a tumor which was in some respects similar to the present one from a patient that appeared at Dr. Clark's clinic. After a period of twelve months a fungous mass reappeared at the former site. This mass closely resembled the uterine surface of a placenta at the fourth or fifth month of gestation. The arm was then amputated at the shoulder-joint. Subsequently the growth returned, and Dr. Willard Parker exsected it at the New York Hospital. It again returned, and Dr. Gurdon Buck removed the scapula and the outer half of the clavicle. Eventually the patient entered St. Luke's Hospital and died. Dr. DELAFIELD said that the case which Dr. Briddon had removed was a myxoma, and might or might not be of a malignant nature.

Lithotomy; Hæmorrhage into the Bladder.—Dr. BRIDDON also presented some fragments of a calculus which he had removed from the bladder by the operation of lithotomy. The patient suffered also from enlargement of the prostate body. Twenty-four hours after the operation Dr. Briddon found the bladder to be greatly distended, and on examination this was recognized to be due to extravasation of blood. Considerable trouble was experienced in removing the clots. Lithotomy was had recourse to in preference to lithotripsy, on account of the irritable state of the viscus.

Epithelioma of the Lip.—Dr. Briddon also presented a specimen of epithelioma of the lip, which he had removed from a patient aged sixty years.

MEDICAL LIBRARY AND JOURNAL ASSOCIATION.

Stated Meeting, November 12, 1875.

Dr. E. R. Peaslee, President.

On Some Points relating to the Nervous System of Children.—Dr. A. Jacobi, after apologizing for the indefiniteness of the name of the paper, said that, before he passed on to consider the subject of the evening, he wished to draw attention to the subject of reflex paralysis and reflex irritation in connection with an abnormal state of the head of the penis or of the generative organs. Recently, he said, considerable mention has been made of it, but he was of the opinion that the subject was more unsettled than ever, and that the condition of the generative organs was not sufficient to explain the constitutional symptoms. A case was recently reported in the *Medical Record* in which the patient had an adherent prepuce. The intellect of the patient was impaired, and there was paralysis of different forms; and, although he was improved by circumcision, the report did not prove that the general symptoms were caused by the state of the prepuce.

Many other cases were equally indefinite. No information was offered as to whether the patients practised masturbation, or the general state when they were quite young. Dr. Jacobi was of the opinion that the paralysis was not reflex, but the result of disease in the spinal cord creeping upward, and that this disease was myelitis.

He had seen many diseases of the nervous system, general and local, resulting from masturbation in children. Masturbation is common both to boys and girls. They will sit by preference on a hard floor, cross their thighs, become flushed and glare with an excited look; after a time they become exhausted. The results of the practice are much the same as in adults. The children become pale, shy, and irresolute. On examining the boys the glans penis is enlarged, the prepuce swollen, and during the act some fluid might escape from the meatus. In girls the labia and clitoris were enlarged, and in a number of cases there was redness of the introitus. The causes of masturbation in children might be due either to some irritation, or to the habit practised by the nurse to keep the child quiet. Soft beds or sofas have a bad effect, and horseback exercise in boys of eight or ten is not an uncommon cause. In the case reported in the *Medical Record* an adherent prepuce was credited with causing much trouble, but, if there was no cavity near the base of the glans to contain smegma or retained urine, it could not be the cause of much irritation. In the rite of circumcision many cases require the prepuce to be torn off.

Common causes of irritation in children were intestinal worms in the rectum, which might enter the vagina in girls. Catarrh of bladder, with or without stone in the bladder or kidney, might act in a similar way. Dr. Jacobi said that renal calculi could not be considered rare, as in six cases out of forty, of children under one year, in which he made autopsies, he found it to exist. In regard to irritation of the kidney, attention was directed to a fact not generally appreciated, that chlorate of potash had a marked effect on the kidneys. Dr. Jacobi had himself a patient who suffered from sore-throat, and to whom he ordered an ounce and a half of the chlorate of soda in solution as a gargle. By mistake the patient swallowed it, and in a few days the patient died of nephritis. Dr. Krackowizer lost a patient in a similar manner.

The treatment of children with masturbation is to control them, and to do this they must be watched. In one family two of the children who masturbated were plunged into a cold bath in the morning, and during the day kept engaged.

He was in favor of the bromide of potassium, and frequently gave camphor. The forms of disease most commonly found were epilepsy, hypochondria, and hysteria, and in one case chorea minor. The local trouble that he had found most common was an hysterical cough, which at first he supposed to be due to pharyngitis, but on investigating the matter he noticed that it was commonly associated with masturbation.

Hemicrania was another common trouble, both of the spasmodic and paralytic forms; also neuralgia of the joints, without any appreciable lesion in the joints themselves, the so-called spinal irritation, and cardialgia. He had seen hysterical paralysis in a very young child.

Some discussion took place as to the subject of hysteria in the male. Dr. Peaslee said that hysteria was usually an ovarian and not a uterine disease, but he knew of a case of a cashier in a bank who would have perfect attacks of hysteria on any great excitement. Dr. Jacobi said that he had found the hysterical cough, mentioned previously, to be most common in boys.

Stated Meeting, November 5, 1875.

Dr. E. R. Peaslee, President.

Writer's Palsy. By Dr. G. M. Beard.—Dr. Beard said that writer's palsy was a disease, the result of over-exertion of a single group of muscles, and was analogous to the cramp of milkmaids, of seamstresses, of pianists, of *danseuses*, and of all others who habitually use one group of muscles. Writer's cramp or writer's palsy was most extensively known, from the fact that the continuous habit of writing or copying was more common than any of the other pursuits which bring about disease of this class. It was a disease usually found in those who enjoyed good health, and in this respect corresponded with locomotor ataxia and progressive muscular atrophy. He said the reason that it did not so often occur in those of delicate constitution was due in all probability to the fact that their strength gave out before the evil effect on the group of muscles could be produced. He was of the opinion that the disease was found more often in those who acted as copyists than in authors who used their intellects at the same time that they used their hand. The symptoms of the disease were usually marked at first by a sensation of weariness in the arm and hand; gradually the index-finger was found to be unable to hold the pen, and eventually cramp developed, which spread to the other fingers. Dr. Beard was of opinion that the disease was both central and peripheral, and he was led to this from the results of recent physiological advances in the study of the brain.

The treatment to be pursued was, first of all, rest to the affected muscles and exercise of the general muscular system. He related the case of one patient, who, when he found himself affected with this disease, cured himself by paddling a canoe. Others had been much improved by exercising themselves in the open air. Galvanism by means of the direct current proved of marked advantage, one pole being placed over the upper portion of the spinal cord and the other along the hand and arm. Strychnia had been advised, but not before the muscles had rested for a couple of months. Dr. W. A. Hammond thought that we must discriminate between cases of fatigue from over-exertion and true writer's cramp. Every one has at times noticed that fatigue comes on after continuous writing for some time, and if this fatigue were considered as the disease, there would be a large proportion of cures; whereas writer's cramp was a tedious disease to treat. He considered rest as one of the most important indications in treatment. It had been pretty fairly proved that in the brain there were centres for every group of muscles, and in writer's cramp the nerve-cells of the centre of the group concerned in this disease were in all probability exhausted. He considered the whole subject very interesting, and susceptible of more elucidation. Dr. Hammond narrated a case indirectly connected with this, in which a patient suffered from a spasmodic winking of one eye. The patient was a clergyman, and this trouble of winking with one eye had been misconstrued by some of the female members of his congregation. He was cured eventually by making pressure by means of a clamp upon the facial nerve. The method of treatment, he said, was not original with himself.

Dr. Laws said that his experience did not agree with that of Dr. Beard, in respect to the fact that writers of original matter were free from palsy. He knew of three cases in which the reverse of this was true. One of these—Dr. Alexander, of Princeton College—was invalided after five months of continuous work at lectures; the second of these was a professional man, who contracted the disease after active exertion; the third was Dr. Mallard, of New Orleans, who, when cramp appeared in his right hand, continued his labors with his left, though he was not naturally ambidextrous.

Stated Meeting, October 29th.

Dr. E. R. Peaslee, President.

Report on Therapeutics.—Dr. Mary Putnam Jacobi read a careful and thorough report on the subject of therapeutics. In reference to the injection of chloral into the veins, she said that an unfortunate and fatal sequel attending its use was the occurrence of thrombosis. The report showed that the researches at the present time tend as much to investigate the old remedies and assign to them their proper place, as to the introduction of novelties.

Obscure Tumor of Neck in a Child.—Dr. Garrish presented a child, upon whose neck there was a tumor the size of a large fist. This tumor extended downward from the ear and angle of the jaw, and had on its surface what were apparently *nævi materni.* The child was five and a half months old; the tumor made its appearance shortly after birth, and continued to steadily increase. When carefully examined, it was found to be located over the course of the external carotid artery, but no sign of pulsation could be detected. Dr. Garrish said he presented the case principally for suggestions as to treatment. Dr. John C. Peters said he had seen Dr. Henry B. Sands operate successfully by electrolysis on a similar case. Dr. Alfred C. Post had operated by means of electrolysis on a somewhat similar tumor situated over the brow of a child. After the operation the little patient looked as if it would die, but eventually it recovered, and was completely cured.

Discussion on the paper of the evening being in order, Dr.

Post said he had been frequently in the habit of giving chloroform to patients after they had taken morphia, and in this way he was enabled to procure for them sleep. He had also used hypodermic injections of six minims of pure chloroform upon himself to obtain relief in occipital neuralgia. The pain was immediately and permanently cured without any tendency to somnolence. A slight slough resulted from the injection.

Dr. Hamburg Smith had given chloroform, in 1854, to patients in the Lunatic Asylum, in order to control them. In cases where they refused to take any nourishment, he gave the chloroform in sufficient amount to paralyze opposition, and then he found that they obeyed his orders without any rebellious tendency.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, November 4, 1875.

Dr. S. S. Purple, President.

Memorial of Dr. Ernst Krackowizer. By Dr. A. Jacobi.—The memorial of Dr. Krackowizer, by Dr. Jacobi, was an exceedingly scholarly production, and combined the merits of awarding to the subject of the memorial many excellences as a surgeon, and the qualities of a just and fearless though humble citizen, without making it distasteful, by excessive laudation, to those who did not know Dr. Krackowizer personally. Dr. Jacobi gave first a *résumé* of his life, including his history when connected with the different surgical clinics of Germany, and explained how, if he had not been compelled by political reasons to exile himself from his native land, he would eventually have become one of the foremost medical teachers in Vienna, and in all probability have occupied the position latterly tendered to Billroth. Dr. Krackowizer came to this country in 1850, and settled in Williamsburgh, but in 1857 removed to this city, where he held many responsible positions. During August, of this year, he contracted typhoid fever, which, though well marked, was of a mild type. After convalescence seemed to be established, enteroperitonitis was ushered in by a persistent diarrhœa which continued in spite of treatment, and, although he suffered the excessive pains of that disease, his mind remained clear to the last, and he died as he had lived, a brave and upright man.

Drs. A. Hadden, W. V. White, J. D. Bryant, and W. A. Wylie, were elected members of the Academy.

Stated Meeting, October 21, 1875.

DR. S. S. PURPLE, President.

The Rheumic Diathesis in Dermatology.—Dr. PIFFARD read a paper on this subject. He discussed at length the physiology of the skin and kidneys, and inclined to the view that the retention in the system of uric and oxalic acids was the main factor in the diathesis. The characteristics of the irruptions of the diathesis, in his opinion, were that they were of a chronic nature, not contagious, and had a tendency to pruritus. They were also superficial, and influenced by treatment which did not benefit other varieties. The treatment based on the foregoing pathology was to stimulate the action of the skin and intestines, and for this purpose the hot-air bath was of great value, combined with mild purgation by laxatives and salines. The dietetic precautions to be taken were to limit the amount of nitrogenized food. The local treatment of the special forms of the skin-disease was to be guided by its particular manifestation. Dr. BULKLEY agreed with the views set forth by Dr. Piffard.

Dr. KEYES was of opinion that there was a diathesis such as Dr. Piffard described, but he did not think it had been so far very clearly demonstrated. There was an hereditary tendency in some patients to some forms of skin-disease, but what that tendency was he considered obscure. He was not of the opinion that persons with lithic or oxalic acid in excess in their systems were specially liable to skin-diseases. Dr. STURGIS thought that local causes might develop troublesome skin-diseases without any constitutional tendency that way, but he was not prepared to deny the existence of a diathesis.

Drs. Beverly Robinson and John C. Peters were of the opinion that, though skin-diseases might be local in character, they were also frequently constitutional.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Seventieth Annual Meeting, October 25, 1875.

Dr. Henry B. Sands, President.

Drs. W. M. Carpenter, William B. Hull, and T. H. Burchard, were elected members.

On motion of Dr. Gurdon Buck, a committee of three was authorized to be appointed by the Comitia Minora. This committee, together with the President of the Society, would serve as an auxiliary committee to the Medical Committee of the Centennial next year.

The officers of the Society elected for the ensuing year were: President, Henry B. Sands; Vice-President, Thomas Addis Emmet; Recording Secretary, Alfred E. M. Purdy; Corresponding Secretary, F. A. Castle; Treasurer, H. P. Farnham; Censors, H. T. Hanks, C. W. Packard, T. T. Sabine, J. E. Janvrin, E. J. Janeway; Delegate for three years to fill vacancy, T. Satterthwaite.

Bibliographical and Literary Notes.

Art. I.—*A Text-Book of Human Physiology, designed for the Use of Practitioners and Students of Medicine.* By Austin Flint, Jr., M. D. New York: D. Appleton & Co., 1875.

This last contribution of Prof. Flint to medical literature is likely to receive a cordial welcome from the class to which it is specially addressed. Dr. Flint's large work, now so well known, had the disadvantage of being beyond the means of the great body of students, and of being too voluminous to be well adapted to the requirements of the average practitioner. The present work is the result of a process of condensation of the original five volumes. The author appears to us to have performed his office with great skill and judgment. The book still remains a complete treatise upon physiology. Few who are not directly engaged in physiological studies will grieve much at the loss of the omitted matter. In some respects the new work is a gain upon its predecessor. It is more evenly written, and, as it has been completed within a year's time, it has been possible to incorporate into the text such additional matter as the rapid advances in physiology have rendered necessary. The present treatise contains nine hundred and forty-seven pages, besides a copious and admirably-arranged index. There has been no attempt to teach physiology in seven easy lessons. Indeed, it is a question whether the profession does not require at least one standard work upon physiology in which important functions are not cursorily treated, or altogether omitted.

To enable the eye to follow the descriptions, three hundred and thirteen illustrations, the finest, we think, that have ever appeared in any medical work in this country, have been incorporated into the text. A few of these are original. A large number are from original electrotype plates of the admirable engravings in the work of M. Sappey. Among the finest in the collection, however, are copies from the microscopical photographs taken at the United States Army Medical Museum under the direction of Dr. Woodward. The wood-engravings of these latter are an honor to the publishing-house, which has spared no expense in their production. It is impossible, in the space allotted to this notice, to give any thing like a comprehensive sketch of the entire work before us, and we shall content ourselves, therefore, with simply calling attention to a few scattered points.

We are glad to meet in the present volume with a description of the amœboid movements of the white blood-corpuscles, as these movements now play so prominent a part in our present conceptions of the mechanism of suppuration.

Dr. Flint still remains true, we find, to the idea expressed in his earlier work, that the corpuscles of the blood, both red and white, are the result of a true *genesis de novo* in the fluid in which they are found, thus adopting the views of Robin and his school, in preference to those current beyond the Rhine.

Richardson's explanation of the cause of the coagulation of the blood, viz., the development of ammonia after removal from the body, is now rejected, though we believe the theory was long defended by Dr. Flint after it had been abandoned by its distinguished author. Following Denis, Dr. Flint accepts the presence of plasmine as one of the principles of the blood. Fibrin he regards as one of the products of the decomposition of plasmine. The fibrinogen and fibrinoplastic matter of Schmidt, which play the important *rôles* in most modern theories of coagulation, he hesitates to accept as other than products of decomposition.

The diagram upon page 43, illustrating an experiment we have often witnessed, seems to us conclusive as to the shortening of the heart during its systole.

The description of the circulation of the blood is in every way excellent, and many of the illustrations are simply superb. We are glad to find described in this connection Cyon and Ludwig's depressor nerve of the circulation, the discovery of which gained for those investigators some years ago the Montyon prize.

In connection with respiration the author furnishes a synopsis of his own ingenious experiments, which demonstrate that the "besoin de respirer" is situated in the tissues, and is conveyed to the medulla oblongata by the general sensory nerves, and not simply from the lungs by the pneumogastric.

A description of the minute anatomy of the teeth accompanies the article on mastication. Dr. Flint still regards the lactic and not the hydrochloric acid as the main agent in acidifying the gastric juice. In the article on peptones, we should have been glad to have found a description of some of the varieties, such as para-peptones, meta-peptones, dys-peptones, etc., as they now meet with such frequent reference.

We regret that the author finds himself obliged to reject the existence of the serous canaliculi, described by Von Recklinghausen, as the origin of the lymphatics. Their assumed existence has certainly proved of wonderful assistance in helping to an understanding of a multitude of morbid processes.

The processes of imbibition and endosmosis, and their application to physiological absorption, are clearly described, which will greatly aid medical students, who are in the habit of looking wonderingly and with a puzzled feeling at the capillary tubes displayed at the lectures of the chemical professor.

Fig. 112, the mammary gland of the human female, is a wonderful specimen of art. The effect is fairly stereoscopic. Dr. Flint does not believe that the milk-globules are formed from the cells of the mammary gland, but regards them as the products of the amorphous walls of the vesicles.

The plates and the description of the physiological anatomy of the kidneys merit special commendation. The same may be added of the article upon the composition of the urine, a subject to which Dr. Flint has long given close attention.

In the article on the liver attention is drawn to the author's important discovery of a new excretory function, described by him in 1862. The argument in favor of regarding the liver as the chief organ for the removal of cholesterine from the blood seems to us as well established as any thing well can be by physiological experimental methods. Indeed, we believe that his views have received the complete indorsement of the few who have honestly attempted to verify them. Dr. Flint likewise establishes his priority to the idea that sugar is constantly formed in the liver, but is found in such small quantities in portions of fresh liver because the sugar is washed out by the current of blood as fast as formed. In a foot-note he states: "The experiments by Dr. Lusk and by Dr. Dalton were made later, with the view of confirming our original observations."

In considering the "General Properties of Nerves," we are grateful for an intelligible description of "electrotonus," "anelectrotonus," and "catelectrotonus," which happily are not such hard matters, after all, as their names would indicate.

In connection with the cerebrum, the novel experiments of Fritsch, Hitzig, and Ferrier, are alluded to, and the results concisely given. In a table furnishing the weights of the brains of a great number of individuals in whom the degree of intelligence was more or less known, much food is furnished for curious speculation. As in his earlier volume, Dr. Flint still doubts the existence of trophic centres in the spinal cord.

The articles on the special senses are very complete, and beautifully illustrated.

The article on generation is sufficiently full for the class for which it is designed. In Fig. 296 we could have wished that a letter had been added to indicate that the hard double layer, which surrounds the body of the chick, was intended to represent the amnion, as we remember how long it was to us a source of perplexity.

It is with the heartiest satisfaction that we acknowledge our debt to Dr. Flint for this last fruit of his persistent labors. It seldom falls to the lot of the reviewer to commend a more thorough piece of workmanship. His book supplies a need, and this the public will not be slow to appreciate. In resting from his long literary labors, we trust that the time now at his disposal may be devoted to original investigation, for which Dr. Flint is so well fitted both by training and natural aptitude.

ART. II.—*Transactions of the College of Physicians of Philadelphia.* Third Series, vol. i., 8vo, pp. xxiv.1–92. Philadelphia: printed for the College, 1875.

THE first article in this volume of these valuable "Transactions" is a "Report of an Autopsy on the Bodies of Chang and Eng Bunker, commonly known as the Siamese Twins," by HARRISON ALLEN, M. D. The results of this examination are doubtless familiar to the readers of this JOURNAL.

This paper is followed by an interesting report of a "Case of Adenoid (Hodgkins's) Disease," by JAMES H. HUTCHINSON, M. D. Nothing new respecting the etiology or treatment of the affection is developed; but the report of the microscopical appearances, by Dr. Richardson, will interest the pathologist. The close relationship or resemblance it bears to a lymph-gland would suggest the name lymph adenoma as more appropriate than "adenoid disease."

John Ashhurst, Jr., M. D., reports a "Case of Fracture of the Neck of the Scapula."

William S. Forbes, M. D., describes "A New Operation for Certain Cases of Cleft Palate and Bifid Uvula," by making "an incision from a little below the middle of the right half of the uvula, on one side, and carrying the bistoury up to a point above the arch of the fissure, and then turning the bistoury, to bring it down to a corresponding point in the uvula of the opposite side." This liberated portion drops, making a long uvula with an oval opening, which is allowed to fill by granulation. After a few days, when the upper front of the opening begins to widen, the tensor and levator palati muscles are divided. The operation is not admissible in cases of fissure of the hard palate.

"On the Operative and Conservative Surgery of the Larger Joints. I. Excision of the Elbow," is an interesting paper by Dr. Ashhurst. Eight cases are reported, the results of which lead the author to recommend the operation in preference to amputation (except in adults, in whom varying circumstances are to be taken into consideration), and with much greater freedom than excision of other joints. He prefers "a single longitudinal incision on the inner and posterior side of the joint" to the H-incision. The entire article is very interesting.

"Experiments on the Laryngeal Nerves and Muscles of Respiration, etc., in a Criminal, executed by Hanging," by W. W. Keen, M. D., may prove of interest in connection with reports of future experiments of a similar sort.

Dr. S. Weir Mitchell contributes a good article "On the Use of Nitrite of Amyl in Various Forms of Spasm, and on its Value as an Aid to Diagnosis." This is followed by a "Case of Acute Tetanus successfully treated by the Inhalation of the Nitrite of Amyl, with Remarks upon the Pathology of the Affection." By Wm. S. Forbes, M. D. A large portion of this paper is taken up with an account of the pathology of tetanus, which we have not space in this notice to discuss. The experience of the author in this case here reported leads him to recommend the nitrite of amyl, not only in tetanus, but also in hydrophobia. Dr. Mitchell, in the preceding article, suggests its employment in syncope, hysterical convulsions, cerebral symptoms arising from shock, and in the cold stage of ague.

Dr. J. M. Da Costa contributes "Remarks on Diabetes Insipidus and its [successful] Treatment by Ergot."

Wm. H. Pancoast, M. D., submits a "Report on Surgical Considerations in regard to the Propriety of an Operation for the Separation of Eng and Chang Bunker," etc. The report is adverse to any operative procedure. Two chromo-lithographs accompany this article.

A "Case of Encysted Dropsy of the Peritonæum, in which Suppuration had occurred, and Abdominal Section was performed, with Recovery," is reported by J. Ewing Mears, M. D. This article is followed by remarks by Dr. William Pepper.

The closing article in the volume is entitled "Quinia as a Stimulant to the Pregnant Uterus," by Albert H. Smith, M. D.

The articles published in this volume are all contributed by prominent gentlemen in the profession, and make a pleasing addition to the existing *status* of professional literature. A number of wood-cuts are introduced in connection with some of the articles, where necessary to illustrate the text.

Art. III.—*The Toner Lectures. No. IV. A Study of the Nature and Mechanism of Fever.* By Horatio C. Wood, M. D. 8vo, pp. 45. Washington: Smithsonian Institution, 1875.

The institution of these lectures "to encourage the discovery of new truths for the advancement of medicine" is likely to result in good, if we may judge by the lectures already delivered.

In the lecture before us, which Dr. Wood delivered on the 20th of January last, the author seeks to elucidate the essential process or mechanism of fever. He first demonstrates that fever is an abnormal elevation of temperature and nothing else; and, second, that it is a *neurosis.* These positions he pretty well establishes, although the illustration, by introducing the case of urethral fever, does not, in our opinion, strengthen his proposition, for it is not yet demonstrated beyond question whether that affection is an "initiative" fever or a type of pyæmia.

It is shown by experiment that there is no necessary relation between the amount of blood-pressure and the degree of temperature. The author holds with Heidenhain, Dittmar, and Owsjanikow, that the vaso-motor centre lies in the medulla oblongata, but the chief generators are cells in the spinal cord which receive their impulse from above "by cells of the so-called sympathetic ganglia." The portion of the nervous system regulating the production of heat, however, is believed to be situated in the pons or above it. It acts normally by *repressing* the chemical action to which the production of heat is actually due. The power or nervous influence which the author supposes to exist for the purpose of developing this heat-producing function, he does not attempt to locate. Now, when any thing, such as blood-poisons, peripheral irritations, etc., causes a paresis or paralysis of the pons or the nervous centre, which represses the heat-production, an elevation of temperature ensues. If the first effect of the morbific influence stimulates this centre, a chill precedes the fever. This repressive theory is illustrated by a supposed case of clot in the pons; it is characterized by a continuous elevation of temperature which does not obtain when the clot is located elsewhere. An interesting case of rheumatism is cited, in which, the poison attacking the brain, an enormous elevation of temperature ensued and the patient was only saved by a timely cold bath of 60° Fahr.

Although it is not demonstrated, the author thinks it is "possible that this inhibitory heat-centre does not act directly upon the tissues, but that, through the whole length of the cord, there are cells whose function it is to preside immediately over chemical activities, and that upon them the inhibitory centre exercises a controlling influence."

We should be glad to have sufficient space to discuss these questions, and allude to others dilated upon in the lecture. It is sufficient to add, however, that the author's points are well taken, and supported by carefully-performed experiments.

Art. IV.—*A Report of Microscopical and Physiological Researches into the Nature of the Agent or Agents producing Cholera*[1] (Second Series). By T. R. Lewis, M. B., and D. D. Cunningham, M. B. 8vo., pp. iv.–60. Calcutta, 1874.

A number of classes of experiments have been performed by the authors of this small volume, the results of which seem to be adverse to the germ-theory of the causation of some of the infectious diseases. In their microscopical researches they were unable to find abnormal appearances in the blood of cholera-patients which were not discoverable in healthy individuals. The injection of healthy human fæces into the blood of animals was attended with the same symptoms which attend others, in the blood of which choleraic evacuations were injected, except that they were affected in a smaller proportion of instances than in the latter case. It is said that the toxic material injected into the blood caused no other phenomena than did solutions of other decomposing organic substances, viz., gastro-intestinal irritation and copious evacuations. Boiling, instead of diminishing the virulence, seemed to increase it.

In cases of vaccine disease motile particles were found in the blood, but no bacteria.

An examination of the blood of cases of malignant pustule leads the authors to the conclusion that the "bacteridia" bear no special *causative* relation to the affection, but exist rather as the *result* of diseased processes. Bollinger[2] seems to have shown conclusively that the bacteridia constitute the special poison of that affection.

The virulence of snake-poisons, subjected to a temperature of 212° Fahr. was not affected, except that, in the case of the cobra-poison, it was slower in acting.

Section of the mesenteric nerves produced a copious secretion of fluid from the intestinal coats, with detachment of the epithelium of the mucous membrane. Sections of the splanchnic nerves were attended with negative results.

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[1] One of the appendices to the "Tenth Annual Report of the Sanitary Commissioner with the Government of India."

[2] *Vide* Ziemssen's "Cyclopædia of the Practice of Medicine," vol. iii., or our review of the same in the number of this Journal for August, 1875. Stimson, in the same number, has a good article on the influence of bacteria.

The authors are of the opinion that, if a high degree of temperature applied for several minutes does not destroy the virulence of poisonous fluids, the probability of the infecting material being in living germs is almost *nil.* The question at present may be considered *sub judice.*

Art. V.—*Lectures on Diseases of the Nervous System.* By Jerome K. Bauduy, M. D., Professor of Psychological Medicine and Diseases of the Nervous System, and of Medical Jurisprudence, in the Missouri Medical College, St. Louis, etc., etc. Philadelphia: J. B. Lippincott & Co., 1876. 8vo, pp. 484.

The author of this work makes no claim to originality, a fact which disarms criticism at the outset, and disposes us to regard the volume simply as a compilation arranged for the purposes of instruction. Hence we shall be disappointed if we look for detail or completeness, or for the result of the author's personal experience. The student and practitioner will, however, find in these lectures much that he needs to know, condensed into a small compass, and expressed in clear language; he will find, in general, sound views on therapeutics, and will be spared frequent allusions to galvanization of the brain, and other absurdities now exploded.

Prof. Bauduy bases the arrangement of his topics upon anatomy. After four lectures on the cerebral circulation and its derangements, he takes up inflammation of the membranes, to which four lectures also are devoted. The nine which follow treat of diseases of the brain-substance, insanity very properly heading the list. After a separate lecture on paralysis as a symptom, diseases of the brain, of very uncertain pathology, are disposed of, e. g., epilepsy, chorea, hysteria, etc. Diseases of the membranes of the cord are next discussed, and we can but regret that the order which the author pursued when treating of diseases of the encephalon is not persisted in. Where we expect to find lectures on locomotor ataxia and other affections due to spinal sclerosis, we find progressive muscular atrophy, Bell's palsy, and cerebral tumors. We are surprised at such inconsistency, but are disposed to regard it as not premeditated, and to believe that, with slight alterations, the book will excel most others as to its arrangement. There can be no excuse, however, for making no allusion to the researches of Westphal, in regard to the interesting connection which exists between so-called general paralysis of the insane and locomotor ataxia, or for omitting so often the name of Charcot, to the credit of others far less worthy.

In the next edition we hope to see more independent digests of some fields of neurology (where access to foreign originals is very easy), fewer italics, and a more available index.

With the writer of a recent review of this book, we join in the opinion that "the present volume represents a course of more than average value," and that "its pleasant style . . . . will enable it to do good service in diffusing knowledge."

Art. VI.—*The Cholera Epidemic of* 1873 *in the United States.* 8vo, pp. 28, viii., 1025. Washington: Government Printing-Office, 1875.

The first section of this work, including the first 28 pages, is entitled "The Introduction of Epidemic Cholera into the United States through the Agency of the Mercantile Marine. Suggestions of Measures of Prevention." By John M. Woodworth, M. D., of the Marine Hospital Service.

The remaining sections form the bulk of the book and are made up of "Reports prepared under the Direction of the Surgeon-General of the Army." This portion of the compilation is embraced under the three following heads: A, "History of the Cholera Epidemic of 1873 in the United States," by Ely McClellan, M. D., U. S. A.; B, "History of the Travels of Asiatic Cholera in Asia and Europe," by John C. Peters, M. D., of New York: in "North America," by Dr.

McClellan; and C, "Bibliography of Cholera," by John S. Billings, M. D., U. S. A.

The first three chapters of Section A, upon the "Clinical History, Etiology, and Prevention of Cholera," will be found of much practical interest to any who desire a full discussion of those questions, especially the chapters on the two last-named subjects. Dr. Peters furnishes a valuable history of the disease, which has required a great deal of study on his part. The portion relating to its history in this country has involved an immense amount of labor on the part of Dr. McClellan. The Bibliography, by Dr. Billings, includes more than 300 pages of quoted authorities, and is very complete and satisfactory.

The work, although voluminous, will be found useful for reference, and of considerable practical importance, in some of its parts, on this important subject.

Art. VII.—*The Forces which carry on the Circulation of the Blood.* By Andrew Buchanan, M. D. Second edition, 8vo, pp. x.–101. London: J. & A. Churchill, 1874.

Dr. Buchanan, in this volume, discusses the questions relating to the circulation of the blood, mostly from a mechanical or physical stand-point. Three forces are stated to be mainly concerned in carrying it on, viz.: 1. "A central propulsive force; 2. The muscular contractility of the blood-vessels; and, 3. A central pneumatic force, or the atmospheric pressure toward the chest and heart, rendered effective by a central dilative force." The last-named, or pneumatic force, is especially dwelt upon by the author, so that it would seem to constitute a favorite theory of his.

The questions are handled logically, and the work will prove of some interest to students of physiology. The relation of the nervous system to the circulation does not seem to interest the author particularly in this connection. It may be stated, in relation to this subject, that Dr. H. C. Wood,[1] as well as other observers abroad, has shown that the vaso-motor power is located primarily in the medulla oblongata.

[1] "Toner Lectures," No. IV., noticed in this number of the Journal.

Art. VIII.—*Winter Homes for Invalids: An Account of the Various Localities in Europe and America suitable for Consumptives and other Invalids during the Winter Months, with Special Reference to the Climatic Variations at each Place, and their Influence on Disease.* By Joseph W. Howe, M. D., Clinical Professor of Surgery in the Medical Department of the University of New York. New York: G. Putnam's Sons, 1875.

This little work contains a large amount of information that cannot easily be obtained elsewhere. The chief fault to be found with the volume is, that it is too small to do justice to the subject. As far as it goes, the medical information is accurate and trustworthy, but more care should have been bestowed on geographical details. There is need of a work such as this purports to be, and we hope to see the need more fully supplied in a future edition.

Art. IX.—*The Physician's Visiting List for* 1876. Philadelphia: Lindsay & Blakiston.

This useful pocket-book has reached the twenty-fifth year of its publication. It contains, in addition to an excellent blank record, arranged for twenty-five patients per week, an almanac, memoranda of antidotes for poisons, treatment of asphyxia, etc.

Books and Pamphlets Received.—Archives de Physiologie Normale et Pathologique. Publiées par MM. Brown-Séquard, Charcot, Vulpian. Deuxième série, tome deuxième, septième année, 1875. No. 5, Août et Septembre. Paris: G. Masson.

A Treatise on Therapeutics, comprising Materia Medica and Toxicology, with especial Reference to the Application of the Physiological Action of Drugs to Clinical Medicine. By H. C. Wood, Jr., M. D., Professor of Botany and Clinical Professor of Diseases of the Nervous System in the Medical Department of the University of Pennsylvania; Physician to the Philadelphia Hospital. Second edition, revised and enlarged. J. B. Lippincott & Co., 1876.

The Relations of the Urine to Diseases of the Skin. By L. Duncan Bulkley, A. M., M. D., Physician to the Skin Department, Demilt Dispensary, New York; Member of the New York County Medical and Dermatological Societies, etc. Reprinted from *Archives of Dermatology*, October, 1875. New York: G. P. Putnam's Sons, 1875.

Lectures and Essays on the Science and Practice of Surgery. By Robert McDonnell, M. D., F. R. S., President of the Pathological Society of Dublin, Surgeon to Steeven's Hospital, Dublin, etc., etc. Part II. The Physiology and Pathology of the Spinal Cord. Dublin: Fannin & Co., 1875. Pp. 184.

Lectures on Syphilis, and on some Forms of Local Disease, affecting principally the Organs of Generation. By Henry Lee, Professor of Surgery at the Royal College of Surgeons of England, Surgeon to St. George's Hospital, Hon. Fellow of King's College. Philadelphia: Henry C. Lea 1875.

The *Obstetrical Journal of Great Britain and Ireland*, including Midwifery and Diseases of Women and Children, with an American Supplement. Edited by J. V. Ingham, M. D., Obstetrician to the State Hospital for Women and Infants. Philadelphia: Henry C. Lea, 1875.

Manual of Minor Surgery and Bandaging. By Christopher Heath, F. R. C. S., Surgeon to University College Hospital, and Holme Professor of Clinical Surgery in University College, London. Fifth edition. Philadelphia: Lindsay & Blakiston, 1875.

The Contagium Particles of the Eruptive Contagious Fevers; their Nature and Mode of Action. By J. E. Atkinson, M. D. Reprinted from "Transactions of the Medical and Chirurgical Faculty of Maryland," April, 1875. Baltimore: Innes & Company.

What Course should be pursued with an Eye lost through Accident? By Julian J. Chisholm, M. D., Professor of Eye and Ear Surgery in the University of Maryland. Reprinted from *Virginia Medical Monthly*, August, 1875.

A Contribution to the Anatomy of Connective Tissue, Nerve, and Muscle, with Special Reference to their Connection with the Lymphatic System. By G. Thin, M. D. From the Proceedings of the Royal Society, No. 155, 1874.

A Practical Treatise on Fractures and Dislocations. By Frank H. Hamilton, M. D. Fifth edition, revised and improved, with Three Hundred and Forty-four Wood-cuts. Philadelphia: Henry C. Lea, 1875.

On the Treatment of Venereal Diseases by Salicylic Acid, with Eight Illustrative Cases. By George Halsted Boyland, M. D. Reprinted from the *American Journal of Medical Sciences* for October, 1875.

The Minute Anatomy of Muscle and Tendon, and some Notes regarding the Structure of the Cornea. By G. Thin, M. D., London. Reprinted from the *Edinburgh Medical Journal* for September, 1874.

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Transactions of the Colorado Territorial Medical Society, at its Third and Fourth Annual Sessions, held in Denver, Colorado, June, 1874, and June, 1875. Pp. 78.

Transactions of the Medical Society of the State of Pennsylvania, at its Twenty-sixth Annual Session, held at Pottsville, Pa., June, 1875. Vol. X., Part II. Pp. 853.

Report of the Health Officer of the City and County of San Francisco, for the Fiscal Year ending June 30, 1875. Henry Gibbons, Jr., Health Officer. Pp. 78.

Transactions of the Medical Society of the State of West Virginia, together with the Constitution and By-Laws. Instituted April 10, 1867. Wheeling, 1875.

Transactions of the New Hampshire Medical Society (Eighty-fifth Anniversary), held at Concord, June 15 and 16, 1875. Pp. 164.

On Traumatic Inflammation of Connective Tissue. By G. Thin, M. D. From the Proceedings of the Royal Society, No. 160, 1874.

Sixty-first Annual Report of the Trustees of the Massachusetts General Hospital, 1874. Boston: James F. Colter & Co., 1875.

Transactions of the Medical Society of the District of Columbia. July and October, 1875. Washington: W. H. Moore.

On Inflammation. By G. Thin, M. D. From the Proceedings of the Royal Society.

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Transactions of the Minnesota State Medical Society, 1875. Pp. 130.

Reports on the Progress of Medicine.

SURGERY.

Prepared by Samuel B. Ward, M. D.

Ignipuncture in the Treatment of Hordeiform Cysts (*Ganglion*) *of the Wrist.*—Dr. Duplouy, professor at the Naval School at Rochefort, is the advocate of this mode of treatment, in an article on the subject which appeared in the *Bulletin Général de Thérapeutique* for June 30th. Two cases treated by him are reported in a thesis by one of his pupils, Dr. Guillaud (Paris, 1875).

A female, aged twenty-one years, had suffered from a large palmar ganglion of the wrist for six years. It extended above the wrist and down into the palm. It was punctured and painted without benefit. Subsequently, M. Dolbeau, of Paris, incised it in its upper part and evacuated a large number of hordeiform bodies; but this was followed by a return of the swelling. Dr. Duplouy next punctured it above and below, scarified the lining membrane, and let out more of the loose bodies. This was followed by acute inflammation, but not by obliteration of the sac. Lastly, he resorted to ignipuncture, making twenty punctures on the first day and twelve on the fourth. This proceeding was not followed by the least suppurative inflammation; nevertheless the tumor gradually subsided, and in a month had shriveled up. The fingers, however, were almost immovable, but recovered motion under the use of gymnastic exercise.

In the case of an agriculturist who presented a ganglion without any hordeiform bodies in it, he applied forty-one points of ignipuncture. These were only followed by areolar inflammations at each point. Three weeks later a small swelling appeared at the upper and inner part of the tumor: this was treated by four more punctures, which sufficed to cause the ultimate disappearance of the cyst.

He thinks it must be admitted, from the experiments of M. Julliard, that the heated needles only irritate the walls they traverse to a very slight extent, and determine adhesions between them proportioned to the number of punctures. The exudations are soon transformed into cicatricial tissue, which contracts like other scar-tissues, and thus is formed what he calls the caustic suture.

In cases presenting hordeiform bodies he would recommend the evacuation of these bodies as a preliminary operation; and after the employment of ignipuncture he would advise early resort to passive movements of the fingers, and faridization, to prevent the contraction of the fingers.—*London Medical Record*, September 15, 1875.

Considering the numerous failures that attend the milder modes of treating ganglia—as, rupture, pressure, painting with iodine, simple puncture, etc.—and the danger attending the removal of the sac by dissection, or laying it open, the method of treatment here recommended, if as uniformly successful and free from danger as represented, cannot but be a valuable resource. W.

Reduction of Dislocations of the Shoulder.—M. Revillout, in the *Gazette des Hôpitaux* for July 31st, gives an account of the mode which M. Panas adopts for the easy accomplishment of this. He believes that almost all these dislocations are produced by a rotation of the humerus; and as the result of numerous experiments he found that it is very easy to lacerate by a movement of rotation a capsular ligament which would resist a direct traction of six hundred kilogrammes. Generally, also, the tendon of the subscapularis is ruptured in the dislocation forward. For the easy reduction of this dislocation it is of importance to keep the arm rotated outward. For, in fact, once beyond the button-hole laceration of the capsule, the head of the bone, when carried inward, lies supported on the inner lip of the laceration: so that if reduction be attempted in this position, the head being separated from the glenoid cavity by a more or less broad ligamentous bridle, it cannot succeed unless by rupturing this bridle, which it is not always easy to do. When, however, muscular resistance having been overcome by a sufficient extension sufficiently prolonged, the head of the bone is brought, by rotation outward, to the middle of the rupture, it suffices to push it with the hand to effect reduction—if it has not become self-adjusted without any noise. Preparatory to this movement of rotation, M. Panas causes traction to be made at the arm above the elbow instead of at the wrist. In this way the flexed forearm is in readiness to be carried outward at the appropriate moment. Much force is not required for extension, provided the muscular relaxation is patiently waited for. M. Panas has succeeded in this manner in somewhat old dislocations, provided sufficient time had not elapsed to give rise to an altered formation of the articular cavity.—*London Medical Times and Gazette.*

Sudden Deaths after Paracentesis Thoracis.—M. Legroux relates one case before the Paris Hospital Medical Society. The patient was a man of prior good health, fifty-two years of age, and on admission presented an immense effusion from a pleurisy of a month's duration. About two litres of liquid had been discharged, to the great relief of the patient; but, after coughing, and speaking quietly for a while, he complained of feeling faint, and suddenly died. The autopsy furnished no explanation of the fatal occurrence. M. Legroux concludes as follows: 1. That sudden death, which is frequent in pleurisy with abundant effusion, is also to be feared when a large quantity of fluid has been withdrawn by operation. 2. This mode of death is probably due to syncope. 3. The liquid should be slowly evacuated, and at two operations in preference to a single one. 4. The aspiratory apparatus may be supposed to have something to do with this fatal accident. 5. A person who has undergone this operation should be carefully watched for some time after its termination, so that aid may be furnished at the slightest sign of syncope.—*London Medical Times and Gazette.*

Another case was reported at a meeting of the same Society, on June 25th, by M. Besnier. A middle-aged lady had suffered during about a fortnight from the signs of a severe pleurisy on the right side, with extensive effusion. There was no cardiac complication; but the general condition of the patient was indifferent and the fever ran high. It was noticed that the intercostal spaces were unusually tender on the affected side. On puncture with the aspirator, a sanious and extremely offensive liquid was evacuated. Scarcely half a pint had been slowly withdrawn when the patient suddenly became extremely pale, her features became fixed, and it was found that the heart had ceased to beat and the other lung to breathe. All efforts to restore animation failed. Death had been almost instantaneous. There was no *post-mortem* examination.

M. Besnier suggests that the mere pain of the puncture may have reflexly arrested the heart. In enfeebled and very depressed subjects very slight causes may suffice to induce fatal syncope, even if the muscles of the heart be healthy. Bernard, Chossat, Bernstein, and others, have shown that in animals even a slight amount of pain may suffice to stop the heart in contraction, particularly if the animal happen to be much enfeebled.

This case, far from furnishing a contraindication to puncture in thoracentesis (pleuritic effusion ?), is rather a proof of the danger of delay. The patient was operated upon too late. Her strength had rapidly given way, just as occurs in other forms of gangrenous inflammation.—*London Medical Record*, September 15, 1875.

Another sudden death after aspiration of the thoracic cavity occurred, it will be remembered, not long ago, an abstract of the report of which may be found in this JOURNAL for September, 1875, page 293. The circumstances attending death, and the causes, do not appear to be the same in any two of the three cases. W.

Avulsion of the Tuberosity of the Tibia.—Such a case is reported by Dr. F. Parona in his *Rendiconto Biennale di Clinica Chirurgica.* There are recorded in medical literature (according to Dr. Sellier) about thirty cases of rupture of the patello-tibial ligament. In two only, recorded by Richet and by Listach, the rupture was accompanied by the avulsion of a lamina of bone from the tuberosity of the tibia; and in one case seen by Nélaton, and recorded by Binet, there had been fracture of the patella three years previously.

Dr. Parona's case was as follows: A robust man, a carpenter, came into the hospital at Novara in 1870, with a transverse fracture of the right patella. An immovable apparatus was applied, and in ten weeks he was able to move about with the aid of a stick and a knee-cap. Six months later, in consequence of an energetic contraction of the triceps (quadriceps?), the fibrous band gave way, and the patient was admitted into the hospital at Pavia. According to his account, the treatment consisted in the application of two India-rubber rings, one above and the other below the knee, which were drawn together by straps. At the end of two months, fibrous union had taken place to a sufficient extent to enable the patient to walk many miles with the sole aid of a stick.

On May 13, 1872, during an effort to maintain his equilibrium, the right leg being completely extended, he felt a severe pain in the knee, and found himself unable to stand. On the same day he was admitted into hospital, under the care of Dr. Parona, who found the knee very painful and rather swollen. The patella was displaced upward, inward, and forward; the fibrous callus, marking the fracture, was felt to be firm and about a centimetre or more in length. The patello-tibial ligament was detached from its point of insertion; crepitus was felt, indicating separation of a portion of the tuberosity of the tibia. The leg was placed in an extended position, on a slightly-inclined plane, and when the local swelling had disappeared an immovable apparatus was applied. At the end of twenty days he returned home, and some months afterward was able to walk long distances with the sole aid of a knee-cap.—*London Medical Record*, September 15, 1875.

Anastomosis of the Extensor Tendons of the Hand.—A very interesting case is shortly detailed in *L'Union Médicale*, February 13, 1875, under the care of M. Tillaux, in which a man had received a wound on the back of the hand, by which the two extensor tendons belonging to the fourth and fifth fingers had been divided, and these fingers had lost all extensor power and were permanently flexed. Esmarch's bandage having been applied, two flaps were turned back, so as to expose the peripheral ends of the divided tendons, and these were then implanted or grafted into the uninjured tendon of the middle finger. This was done by making a sort of button-hole in the tendon (or in its sheath ?) into which the two divided tendons were implanted by means of several points of metal suture. The operation was performed without an anæsthetic, and the tendons, which were completely free from any trace of inflammation, presented evidences of lively sensibility.

The wound healed kindly, and the man recovered the motion of both fingers.

The only case which the relator of this (Dr. Gilette) could refer to as analogous is one mentioned by Velpeau ("Méd. Opér., ii., 507) in which a surgeon named Mitta had united a divided tendon to the edge of a sound one, but without actually grafting it. Several cases of suture of divided tendons are referred to.—*London Medical Record*, August 16, 1875.

Complete Division of the Larynx and Œsophagus; Recovery. Complete Division of the Trachea; Recovery.—Abstracts of both these cases may be found in the *London Medical Record* for August 16th. The first is reported by S. Henschen, in the *Upsala Läkareforenings Förhandlingar.* A peasant, forty-three years old, attempting suicide, divided the tissues of the neck transversely, down to the prevertebral fascia, which was itself also somewhat incised, severing the trachea, œsophagus, and recurrent nerves, leaving the carotid arteries uninjured.

The cricoid cartilage was divided just below the vocal cords; the upper part of the cartilage was drawn up with the larynx, while the lower was drawn down with the trachea. Around the upper end of the trachea the surrounding tissues had swollen and pressed on the opening, which was also partly covered by a piece of the divided thyroid cartilage; respiration was considerably impeded. Behind the trachea the œsophagus was, with great difficulty, found. It had been so drawn down toward the thorax that it was only after two hours' effort that Dr. Landgren was able to reach it, and prevent its further retraction by passing some suture threads through it.

At the upper part the wound was limited by the pharynx and larynx in a state of œdematous swelling: the inferior vocal cords lay exposed. The space between the upper and lower ends of the œsophagus was so great that the closed hand could reach the bottom of the wound when the patient lay with his head bent backward.

From the pharynx and larynx there constantly escaped quantities of saliva and buccal secretion, which, mixed with the discharge from the wound, threatened to block up the trachea, as the patient could not swallow, or free his mouth by coughing.

The first question was, how to feed the patient, and at the same time make the breathing less difficult. By means of an œsophageal tube he was given abundance of milk, raw eggs, wine-and-water, and afterward infusion of meat, prepared with hydrochloric acid at a temperature of 113° to 116° Fahr. He bore the food very well.

In order to prevent the discharge from the wound and the saliva from running down the trachea, the patient was laid on his side, and kept clean by the assiduous use of sponges and charpie. The flap of thyroid cartilage lying over the opening of the trachea had to be cut away. The patient's condition was tolerably good, and there was no general reaction.

After freeing the œsophagus from its surroundings above and below, partly with the scalpel and partly with its handle, the cut ends were brought, by placing the patient's head in a favorable position, within half an inch of each other, and there retained by sutures, two behind and two in front. An œsophageal tube was then carried from the mouth to the stomach and retained in position. For some days a solution of bromide of potassium was applied to the throat.

The larynx being partially paralyzed by the division of the recurrent nerves, it was impossible to unite the divided ends of the trachea.

By means of abundant granulations, the wound soon assumed the form of a funnel, the lower part of which was formed by the trachea, where all the secretion was collected. It was difficult to prevent this from closing the tube; but fortunately the patient learned, with the help of a hand-mirror, to dress his own wound.

During the next two weeks the patient's condition was less satisfactory than before. It afterward improved, and in a month he was able to return home. In the anterior part of the œsophagus there was still an opening the size of a small goose-quill. Around the trachea induration had taken place, which kept the the aperture open, even when a trachea-tube was not used; the wound had become filled with granulations, suppuration had nearly ceased, and the edges of the wound had united.

After being at home two months he was obliged to remove the œsophageal tube to cleanse it of the remains of meat, etc., with which it had become plugged, and found that he could, without much difficulty, swallow small pieces of bread and the like. Drink, however, escaped through the fistulous opening.

After five months the patient was admitted to the Seraphim Hospital, to have a stricture of the œsophagus dilated. His general health had been continuously good, but he was, of course, deprived of the power of speech.

The second case is reported by Dr. Luigi Stagi, in *Lo Sperimentale*, for June. When hastily summoned the doctor found, lying in a bed covered with blood, a young man, aged about twenty-four, of ordinary height, nervo-sanguineous temperament, and with scanty development of fat. On examining the neck, he found that a razor had divided the trachea between the first and second rings, and the edges of the wound were nearly an inch apart. The breathing was difficult and noisy, and aphonia complete. The mouth and nostrils were open, but respiration was performed solely through the wound. No vessel of importance was injured.

To arrest the passage of blood into the trachea, Dr. Stagi turned the patient on his face, the head being supported by an assistant, and cold was employed to stop the hæmorrhage. The next morning bleeding had ceased, and respiration was carried on freely through the wound. The patient was then turned, and his head bent down toward the chest and retained there for eighteen days. The parts had scarcely been brought together when the patient explained to the by-standers, in a weak voice, the reason of his attempted suicide. On the twelfth day the trachea was reunited, and on the thirty-second day he was discharged perfectly cured, except that his voice was rather hoarse, and a linear cicatrix marked the site of the wound.

Translations.

Cases of Crusted Scabies.—Under this title, R. Bergh, of Copenhagen, has communicated an interesting and exhaustive article to the Hospitals-Tidende, Nos. 20–23, 1874.

Though the insects do not generally produce much thickening of the skin by their boring operations, yet the itching thus produced causes the patient to scratch and irritate the skin, and thus produce a thickening in a secondary manner.

In some individuals this process takes place in a marked degree, and under these new formations are found the excrements, eggs, and bodies, of the deceased insects, like the stratified fossil remains described by the geologists. The Norwegian animals spread under these crusts in colonies, and, as one colony dies out, its place is occupied by ever-increasing new colonies. Sometimes, instead of spreading over the body, they restrict themselves to some particular part which best agrees with them. The author has seen two cases in which the small, whitish crusts were seated on one of the forearms and the waist.

Bergh describes a rare and interesting case in which, in addition to the above-mentioned formation of crusts, the nails of the fingers and toes were affected and became hypertrophied, growing out like the claws of animals. The patient was twenty-four years of age when he entered the hospital, and his disease commenced when he was eight years old. According to his own story, which is not very reliable, a hard mass was first formed under the nails of the hands and then of the feet. As these growths increased in size, they gradually forced the nails out of position, and the latter then began to assume the claw-like form and size they presented when first seen by the doctor. Some years after the nails began to be affected, the formation of crusts commenced in different places on the body. The growth of the nails was very rapid, and he was obliged to cut off about a quarter of an inch every two weeks. The cutting was somewhat painful, and occasionally excited bleeding from the matrix.

Under the microscope the crusts from the skin were found to consist of epidermoid cells, saturated with and held together by transuded matter, and a molecular substance, mostly of a fatty nature, and mixed here and there with blood, which had given the crusts a yellowish color. Throughout their whole thickness they were filled with an innumerable quantity of excrements, egg-shells, eggs in all stages of development, the skins and other remains of the insects, and insects in various stages of development.

Sections from the nails were also examined under the microscope, and found to consist of an axial portion of very well-preserved nail-substance surrounded by a crust-formation similar to that of the skin, though the passages and cavities in them were smaller, and the insect's detritus was also much less in quantity. A couple of small pieces of this mass from the nails, of about one cubic millimetre in size, and weighing between one and one-tenth milligramme, were carefully searched. In the first one were found one male, one female, two eight-legged and six six-legged young ones, six whole eggs and twenty-five egg-shells, thirteen larger or smaller pieces of insect-skins, and about two hundred and fifty lumps of excrement. In the other were found one female, one eight-legged and seven six-legged young ones, two whole eggs and twenty-six egg-shells, fifteen pieces of insect-skin and about two hundred and sixty lumps of excrement.

A very accurate description is given of the animals in their various stages of development, from which it seems quite evident that, contrary to the hitherto received opinion, the parasite which produces this disease is the ordinary *Sarcoptis hominis* (Rasp.), and differs from those commonly seen only in having assumed an excessive degree of development.

The treatment of the patient was first, potash-baths, the hands and feet were covered with vulcanized rubber, and the patient was sprinkled with a solution of carbolic acid, 1 to 50. After the use of seven baths all the crusts had fallen off. The nails, especially on the toes, had become smaller and slightly exfoliated on their surface. Styrax-liniment was used twice a week, morning and evening; on the other days, potash-bath and sprinkling with carbolic acid. Four weeks later the last of the nails had fallen off, but those on the toes were reproduced in a somewhat claw-shape, while those of the fingers were flatter. In twelve weeks the skin where the thickest crusts had been seated was light-red, unpigmented, but somewhat more firm to the touch. The patient was under treatment eighty days in all, and was discharged cured. G. R. C.

Cyanides in the Treatment of Articular Rheumatism.—M. Luton, of Rheims, before attempting medication with cyanides, employed the tincture or extract of colchicum in large doses: five grammes of tincture in a gummy mixture during the first day, one table-spoonful being given every hour until the appearance of intestinal disturbance, when the remedy was discontinued, and the patient received watery diet. In unsuccessful cases the same treatment was renewed a second and third time. Articular rheumatism treated by this method from the beginning was always cured, and never presented cardiac or cerebral complications. M. Luton first employed the cyanide of zinc in cases of cerebral gout, in doses of 0.10 centigramme. This having been successful, he tried it in acute articular rheumatism, and the result has been so satisfactory that he maintains to have discovered a perfect and unique anti-arthritic. He prefers the cyanide of zinc to the cyanide of potassium, which is more active, less stable, and has a disagreeable taste. The former salt is a white powder, odorless and tasteless, insoluble in water, but easily made into pills or suspended in a gummy mixture. Dose, 0.5 to 0.20 centigrammes. When given in mixture, cherry-laurel water is added. Owing to the rapidity with which the cyanide of potassium is decomposed in the system, and the hydrocyanic acid eliminated by the lungs, the therapeutic impression can often be repeated without having to dread a cumulative action, as in the case of nux-vomica and strychnine. If the cyanide is given in sufficiently divided doses it can be taken in a relatively considerable quantity. The physiological limit being passed, vertigo, frontal cephalalgia, nausea, colic, and sometimes a little diarrhœa, are observed. More often, the stomach is advantageously stimulated, the appetite and digestion being good. The cyanide is an anti-dyspeptic, a perfect remedy against gout of the stomach, and can be given during or after meals. Furthermore, the cyanides are general sedatives, and promote sleep. Their therapeutic effects are: diminution of pain, redness and swelling; the heart's action becomes less violent and frequent, the temperature diminishes; diarrhœa is exceptional. The author certainly believes that the cyanides can cure acute articular rheumatism, shorten its duration, and diminish the risk of complications.—*Lyon Médicale*, No. 7, 1875. E. F.

Primitive Absorption of the Alveolar Processes.—According to Dr. Dop (*Rev. Méd. de Toulouse*), the premature alveolar absorption is due to the presence of tartar between the tooth and the gum, and not to a phenomenon of previous senility, or a too great density of the tooth. The presence of this tartar induces the suppuration of the gum; the pus bathes the alveolar walls and determines their exfoliation. Moreover, the calcification which has invaded the dentinal fibrillæ is not the first condition of vital weakness of the tooth thus rendered a foreign body. This calcification is, on the contrary, the result of the resorption of the alveolus, which can no longer furnish the aliment formerly received from it. Finally, this affection, if it is treated before the disappearance of the gum and the alveolus, is perfectly curable by cauterizations with pure hydrochloric acid. These cauterizations induce the constant renovation of the epithelium of the mucous membrane. The latter is seen to become detached in grayish shreds every twenty-four or forty-eight hours. At the end of several days, the gum may be noticed to be covered with fine granulations; little by little it becomes elevated, and finally returns to its normal height. When the suppuration is very abundant, Dr. Dop prescribes, at the same time, painting with tincture of iodine. The suppuration appears to diminish more rapidly. Nevertheless, we believe that this adjuvant may be dispensed with, the acid employed to the exclusion of every other remedy having succeeded perfectly in our hands. As soon as the suppuration has been arrested, and the gum has a well-marked tendency to granulate, the acid may be replaced by a mixture of alcohol at 90°, and muriatic acid. These acid applications should be made with extreme caution. Touching the part of the tooth covered with enamel must always be avoided, otherwise this protective cover of the dentine will be liable to disappear in a few days.—*Bull. Gén. de Thérapeutique*, August 30, 1875. G. R. C.

Effect of the Number of Vaccine Pustules.—Burchard has recently examined the question of how many pustules are necessary to insure the protective effect of vaccination. Basing his conclusions on the results of revaccination in the army, he decides that the number of revaccination scars does not produce any essential difference of susceptibility to the vaccine contagion. In vaccinating, therefore, as few punctures as possible should be made. Eulenburg, after investigating the literature of the subject, has adopted a different conclusion (*Vierteljahrschr. f. gericht. Med.*, B. xix., H. 1). He shows, by the aid of the statistical investigations of Gregory, Hervieux, Ballard, Marson, and Oppert, that the number and nature of the vaccination scars present generally modify the cases of variola in such a manner that a diminished intensity of the latter disease coincides with a greater number of vaccination cicatrices. Now, as the number of ten cicatrices appears to give a particularly good prognosis, he recommends, as a maximum, ten punctures, or five incisions, of five millimetres' length, but divided between both arms, so that the pustules may have sufficient space for their development. He recommends, as a minimum, five punctures, which is especially applicable to feeble persons, or during the prevalence of epidemic conditions, especially erysipelas. He is strongly opposed to an excessive increase of the number of pustules, which, according to his experience, is, on the one hand unnecessary and on the other exposes the subject to the danger of the development of severe general and local symptoms.—*B. k. Wochenschr.* and *Hospitals-Tidende*, No. 33, 1875. G. R. C.

Cancer of Stomach; Metastasis to Liver and Lungs.—Dr. Bull communicated to the Christiania Medical Society the case of a patient fifty-nine years of age, who was well formed, had always appeared well, and led a regular life. In the autumn there was some blood in the urine, but the patient did not complain of pain. The blood disappeared from the urine, but reappeared in the following spring. The appetite diminished, the strength gradually lessened, and there was general emaciation. He died the following May. A *post mortem* was made by G. A. Hansen. Two carcinomatous ulcers were found at the pylorus. There were a number of large, somewhat firm, metastatic nodules in the liver. The lymphatic glands under the liver and behind the stomach were specifically infiltrated. There were numerous radiated scirrhous cicatrices, surrounded by small, flat nodules, on the surface of both lungs. Wedge-shaped infiltrations extended from these cicatricial contractions into the lungs. The kidneys were much contracted, and large calculi were found in their pelves. The slight functional phenomena are remarkable in connection with the long duration of the disease.—*Nord. Med. Ark.*, vol. vi., No. 4. G. R. C.

Prophylactic in Cholera Infantum.—The numerous cases of gastro-intestinal catarrh occurring in small children during summer preponderate among such as are fed with the bottle. The various kinds of treatment adopted by physicians have not proved very successful, hence a prophylactic against this disease is of great value.

As the affection originates in the nourishment of the infant, Jacusiel (*Berl. k. Wochenschrift*, 1875) has been led to add two tablespoonfuls of a one-third per cent. solution of salicylic acid in water to the daily allowance of milk, with the effect of rendering the germ of the disease powerless. The children fed in this manner have not had gastro-intestinal catarrh, or suffered any inconvenience from this rather free use of salicylic acid. The remedy is harmless and also inexpensive.—*Hospitals-Tidende*, September, 1875. G. R. C.

Ovarian Compression in Hysteria.—Prof. Charcot believes that, in the majority of hysterical crises, there exists an *aura* having its point of departure in one of the ovaries, sometimes in both. This granted, in order to suspend the crisis almost instantly, it suffices to exert strong pressure on the ovary which is the seat of the *aura*. At the last conference held at La Salpêtrière, M. Charcot shows the efficacy of this means in a patient attacked by hystero-epilepsy. At several recurrences, he suspended the attack at will by exerting pressure on the left ovary. When the compression was removed, the attack returned. To exert sufficiently prolonged pressure, and thus to abort the attack, Charcot employs a sort of tourniquet. Pressure with the fingers is made exactly as for compression of the iliac artery. The fingers make pressure behind the pubes, and the artery is felt beating under them.—*Gaz. Méd.* —*Lyon Médicale*, No. 6, 1875. E. F.

Miscellany.

Journalistic Notes.—The *Journal of Anatomy and Physiology* is now issued quarterly, and has added to its staff the Prælector of Physiology in Cambridge and the Professor of the Institutes of Medicine in Edinburgh. It is now under the control of Profs. Humphrey, Turner, Foster, and Rutherford. The *Journal d'Hygiène, Climatologie, Eaux Minérales, Stations Hivernales et Maritimes, et Epidémiologie*, is the title of a new semi-monthly published in Paris. It is the bulletin of the Conseils d'Hygiène et de Salubrité, and is published by Dr. Prosper de Pietra Santa, Inspector of Mineral Waters of the Department of the Seine. The first number appeared on the 1st of October. The *Journal of Psychological Medicine and Medical Jurisprudence* is to be abbreviated in title to the *American Psychological Journal*, and the Medico-Legal Department is to be added to the *Sanitarian* after January 1st. We have received the first number (November) of the *West Virginia Medical Student*, a monthly journal of thirty-six pages, edited by James E. Reeves, M. D., and published in Wheeling, West Virginia. The first issue is a very good one, and we trust the editor may meet with the encouragement the enterprise deserves. The *American Journal of Microscopy and Popular Science* is the title of a new monthly issued by the Handicraft Publication Company, 37 Park Row, New York. It consists of eight pages, and the price of subscription is fifty cents a year. The *Indiana Journal of Medicine*, edited by Thaddeus M. Stevens, M. D., has been consolidated with the *Cincinnati Lancet and Observer*. A new weekly journal, the *Paris Médical*, devoted to practical medicine and surgery, has appeared in Paris. It is edited by Prof. J. A. Fort. None of the articles are to be signed by the writers. We have not yet received the first issue.

Appointments, Honors, etc.—Dr. Robert Edes has been appointed Professor of Materia Medica in the Harvard Medical School, and Dr. William L. Richardson Instructor in Clinical Midwifery in the same school. Dr. Charles F. Parker has been appointed to the chair of Anatomy in Rush Medical College, Chicago. Dr. H. A. Johnson has been appointed Professor of Clinical Medicine in the Chicago Medical College. In the Woman's Hospital College, Chicago, Prof. John Bartlett has been transferred from the chair of Diseases of Children to the associate chair of Practice of Medicine. Prof. Charles W. Earle has been transferred from the chair of Physiology to that of Diseases of Children; and Dr. Sarah Hackett Stevenson has been made Professor of Physiology. Prof. A. H. Foster has resigned the chair of Surgery. Dr. R. C. Chenault has been appointed Superintendent of the First Kentucky Lunatic Asylum. Dr. Gowan, recently appointed Superintendent of the Toronto Lunatic Asylum, has been removed on account of insanity.

Dr. Edward Warren, Surgeon-in-Chief of the Egyptian Army, has been obliged to resign his position on account of ophthalmia, contracted in the service of the Khedive. Dr. Samuel Gordon has been elected President of the College of Physicians of Ireland. M. Bouillaud has resigned the chair of Clinical Medicine in the Faculty of Paris.

More Deaths from Chloroform.—The *Medical Times and Gazette* of October 16th records the death in the Seaman's Hospital, Liverpool, of a sailor aged fifty-six years, during the administration of chloroform. The operation proposed was the removal of a piece of dead bone from the leg, but the patient expired almost immediately after the chloroform had been administered. The heart was found to be healthy, but the brain was diseased.

The same journal of the previous week reports the death from chloroform, in private practice, of a man to whom the anæsthetic had been given for the reduction of a dislocated shoulder.

A death occurred in the Albany Hospital, November 6th, from the use of a mixture of equal parts of ether and chloroform, administered preparatory to the amputation of a finger by Dr. Armsby. The patient, a nervous man, enfeebled by sickness, died after inhaling the anæsthetic two minutes and a half.

Arsenic-Eaters.—The *Medical Times and Gazette* gives extracts from the proceedings of the recent meeting of German *savants* at Gratz, quoting Dr. Knapp's observations regarding the habit of arsenic-eating as practised in Styria. A number of apparently unmistakable cases are mentioned as having come under personal notice, and Dr. Knapp is convinced that the habit is very prevalent in Upper and Middle Styria. Some of the arsenic-eaters reach a good old age, but the quantity taken is generally quite small. Nothing like arsenical cachexia was observed, but poisoning sometimes results from incautious use of the drug. Dr. Knapp has seen fourteen grains taken at a dose, but that was more than usual. It is taken at intervals of from two or three days to a week or fortnight.

A Possible Utopia.—Dr. Benjamin W. Richardson, at the recent Social Science Congress in Brighton, entertained and instructed the assembly by giving a detailed description of an imaginary city of one hundred thousand inhabitants, built, paved, drained, ventilated, and governed, in strict accordance with hygienic rules. The object was to show the extent to which disease might be limited by measures entirely practicable in any civilized community about to found a city *de novo*, though applicable only in part to existing towns or cities. The ideas set forth are, however, eminently suggestive.

The Late Dr. J. Hughes Bennett.—The English journals contain full particulars of the illness and death of Dr. Bennett. Ten days before death a large stone was removed from the bladder. A *post-mortem* examination revealed a tumor about the size of a hen's-egg, on the right side of the head, between the dura mater and the bone. The brain weighed forty-seven ounces. Dr. Bennett had never suffered from any symptoms indicative of brain-lesion.

A New Medical Law for the Province of Quebec.—A bill is about to be considered by the Legislature of Quebec, having for its object the more efficient regulation of the practice of medicine in that Province. Under the proposed law a fine of not more than one hundred dollars will be imposed for practising medicine without registration, or for assuming the title of "Doctor" unless legally authorized to do so.

The Association of Confederate Surgeons.—The recent meeting of this Association, in Richmond, was not largely attended. Dr. Hunter McGuire was elected President, and Dr. B. M. Wible, of Louisville, Vice-President for the ensuing year.

The Late Dr. R. M. Gage.—At a meeting of the American Academy of Dental Medicine, held July 31st, resolutions of respect and esteem were adopted in memory of the late Dr. R. M. Gage, a prominent member of the dental profession.

Medical Students in London.—The whole number of students at present pursuing medical studies in the eleven metropolitan hospitals in London, according to the official return, is 1,754, an increase of 29 over the attendance last year.

A New Woman's Hospital.—Mr. Thomas Jessop, an ex-Mayor of Sheffield, England, has offered to build a hospital for women in that city, at a cost of over $100,000.

Appeal from the Medico-Legal Society.—Clark Bell, Esq., President of this Society, has published an appeal to the medical and legal professions, for aid in organizing and maintaining a complete library of all accessible works on medical jurisprudence, especially those in the English, French, and German languages. The labor was begun in 1872, and has thus far progressed very favorably. There is no complete library of the kind in the United States, and, if the present enterprise is successful, the result will be of great value for study and reference. Besides all works on medical jurisprudence, the Society is desirous of obtaining the following publications:

1. The proceedings of all the medical societies of the various States, because their proceedings contain in many instances papers and discussions of the highest value upon these topics, which can only be reached through these very published transactions.

2. The reports of the various asylums for the several

States of the Union, as well as those of England and the Continental countries, and the reports of Legislative Committees or State officials upon the subject of the insane, insane asylums, or kindred topics.

3. Those papers, pamphlets or publications contributed by either profession, which, published by societies or individuals, are inaccessible to the student or the practitioner, except through the aid of such a library.

We make the subjoined extract from the appeal:

"A catalogue of the names of all works ever published on these subjects is in course of preparation by members of this Society, is now far advanced toward completion, and the time has now come, in the judgment of the management of this Society, when it is justified in making this statement and appeal to all those who feel an interest in such a movement, to help it by contributions of cash or volumes to the collection.

"If money is contributed, it will be expended for volumes on which the donor's name will be inscribed, and the annual statement of the Society will announce the names of the donors of cash or of volumes, with the names of such volumes as are contributed.

"It is proposed, in case a contribution is made by any person not a member of this Society, which is acceptable to and is received by the Society, that such contributor shall have the right of access to the Library for reference, under such rules and regulations as the Society shall from time to time establish.

"The Equitable Life Assurance Society of New York has kindly offered to furnish a home for this Library, in their new and elegant building, which offer is now under consideration by this body.

"The aims and claims of the enterprise are respectfully commended to librarians of the various libraries of this country and of Europe, who are invited to exchange works or pamphlets on these subjects, for the publications of this Society, the greater part of which can only be thus obtained, and are not for sale by dealers."

The Paris Winter Lectures.—The following is taken from the Paris correspondence of the *Lancet:*

"The Professor of Anatomy, M. Sappey, will lecture on the principal systems and the principal regions of the body, while Prof. Robin will lecture on histology, and make a special study of each of the organic tissues and systems. The theoretical teaching of surgery is divided between MM. Dolbeau and Le Fort, the former of whom will lecture on general surgical pathology, and the latter on 'the therapeutics of affections of the circulatory system,' and 'the operations performed in diseases of the eyes, the mouth, and the chest.' In Medicine M. Duguet (Medical Pathology) will lecture 'on diseases of the urino-genital organs in man and woman;' and Prof. Chauffard (General Pathology and Therapeutics) on 'acute and chronic diseases, their symptomatology and etiology.' The Professor of the History of Medicine, M. Lorain, will lecture this year on 'the historical aspects of some contagious diseases—small-pox, syphilis, etc.' The sister sciences will include Prof. Gavarret's lectures on the physical phenomena of speaking and hearing, and Prof. Wurtz on the study of the blood and the chemical phenomena of respiration and nutrition. The practical teaching of the school is carried on in the hospitals, and includes Profs. Béhier and Richet at the Hôtel Dieu; Gosselin and Sée at La Charité; Verneuil and Lassègue at La Pitié; Broca at the Hôpital des Cliniques; and Depaul in the lying-in wards of the same hospitals. Dr. Blachez will also deliver a series of supplementary lectures on pædiatrics at the Hôpital des Enfants. Dr. Michel Peter will continue his series of brilliant and instructive lectures at the St. Antoine; Dr. Bucquoy is to lecture at Cochin; Fournier at Lourcine or the Lock Hospital, on the venereal diseases of women; Panas, on eyes, at Lariboisière; and Gallard, on women, at La Pitié. Dr. Isambert will also continue his lectures on the larynx and his practical demonstrations of the uses of the laryngoscope, which he inaugurated so successfully last winter."

The Late Dr. W. T. Walker.—At the regular monthly meeting of the Board of Lady Supervisors, held at the Woman's Hospital on the first Saturday in June, 1875, the following resolutions were passed:

Resolved, That we, the Board of Lady Supervisors of the Woman's Hospital in the State of New York, having heard of the death of Dr. William T. Walker, of Virginia, do sincerely mourn his loss, both as a personal friend and a faithful physician to the above-mentioned institution, and desire to express our heart-felt sympathy to his immediate family and friends.

Resolved, That in tendering our sympathies to his relatives, we assure them of our full appreciation of Dr. Walker's skillful and untiring services in behalf of the Woman's Hospital, which he entered as resident-surgeon in March, 1868; rising higher and higher by his own talents and devoted services, until he had charge of a large clinique for out-door patients, and became assistant-surgeon to Dr. J. Marion Sims.

Resolved, That we assure his relatives of not only his valuable services in the Woman's Hospital as one of its physicians, but also, that his consistent Christian character, superior judgment, indomitable energy and most noble, tender heart, won for him not only the esteem of the Medical Board, the Board of Governors, and the Board of Lady Supervisors, but also the affectionate and grateful friendship of the patients and inmates of the hospital.

MARY JAY EDWARDS, *Secretary*.

The Late Dr. Krackowizer.—At a stated meeting of the New York Academy of Medicine, held October 21, 1875, a committee consisting of Drs. A. Jacobi and Gurdon Buck presented the following resolutions, which were unanimously adopted:

Resolved, That, in the decease of Dr. Krackowizer, the Fellows of the New York Academy of Medicine have sustained the loss of one of their most eminent and highly esteemed associates—eminent for his thorough and extensive professional acquirements, his varied experience and mature judgment, his practical skill and brilliant success, especially as a surgeon; esteemed for his honorable and upright character, his unvarying trustworthiness, his cordial and friendly bearing, and his self-sacrificing loyalty to duty.

Resolved, That we will cherish his memory as a bright example of professional rectitude and private virtue, worthy of our constant emulation.

Resolved, That a copy of these resolutions, duly authenticated, be communicated by the Secretary to the family of the deceased, with the expression of our sympathy in this great bereavement.

Resolved, That these resolutions be published in the medical journals of this city.

S. S. PURPLE, M. D., *President*.

W. T. WHITE, M. D., *Secretary*.

Desiccated Blood.—Some observations on desiccated blood were recently communicated to the Academy of Sciences of Paris by M. Le Bon. If blood is reduced, by simple evaporation, to a solid, the resulting powder is absolutely insoluble and indigestible; it may be macerated for twenty-four hours with a solution of pepsine and acid without being altered.

But by evaporation at a low pressure and at a temperature which does not exceed that of the body, M. Le Bon has succeeded in obtaining a powder which, even after being kept for eighteen months, is readily soluble in water, and yields a red solution which has exactly the properties of defibrinated blood, is precipitated in the same manner by heat, and shows under the spectroscope the absorption bands of hæmoglobin. The powder is soluble in an acidified solution of pepsine or in simple water, a fact which sufficiently proves its digestibility. The therapeutical applications of this preparation are important enough if its characters are uniform.—*Lancet.*

Prize of the Medical Society of London.—The Fothergillian Gold Medal, value twenty guineas, is offered annually for a dissertation on some subject connected with medical science, for which the learned of all countries are invited to become candidates. The subject selected for competition in March, 1876, is on "Cataract and its Treatment;" for March, 1877, on "Pyæmia." Essays, which must be in the English or Latin language, and not in the handwriting of the author, must be delivered to the Registrar, at the Society's house, on or before November 1st, preceding. With the dissertation must be delivered a sealed packet, having a motto or device on the outside, and within the author's name and designation. The same motto or device must be inscribed on the dissertation. The successful essay becomes the property of the Society.—*Lancet.*

Study of Anthropology.—A new school of anthropology has been founded in Paris. Courses of lectures on the various branches of science have been arranged, and are to be delivered at the École Pratique, by MM. Broca, Dally, Mortillet, Hovelacque, Topinard, and Bertillon.—*Record.*

Army Intelligence.

Official List of Changes of Stations and Duties of Officers of the Medical Department, United States Army, from October 14 *to November* 13, 1875.

Edwards, L. A., Surgeon.—Relieved from duty in Military Division of the Atlantic, S. O. 208, A. G. O., October 15, 1875, and granted leave of absence for six months on surgeon's certificate of disability. S. O. 223, A. G. O., November 4, 1875.

Sternberg, Geo. M., Assistant Surgeon.—Granted leave of absence on surgeon's certificate of disability for six months from November 1, 1875, with permission to go beyond sea. S. O. 227, A. G. O., November 9, 1875.

Greenleaf, C. R., Assistant Surgeon.—When relieved by Assistant-Surgeon Dickson, assigned to duty as Post Surgeon at Nashville, Tenn. S. O. 156, Department of the South, October 21, 1875.

Janeway, J. H., Assistant Surgeon.—Assigned to duty at St. Augustine, Fla. S. O. 153, Department of the South, October 15, 1875.

Woodhull, A. A., Assistant Surgeon.—When relieved by Assistant-Surgeon Delany, assigned to duty at Oglethorpe Barracks, Savannah, Ga. S. O. 156, C. S., Department of the South.

Williams, J. W., Assistant Surgeon.—Leave of absence extended one month, with permission to apply at headquarters of the Army for a further extension of one month. S. O. 113, Military Division of the Missouri, November 5, 1875.

Brown, J. M., Assistant Surgeon.—Assigned to duty as Post Surgeon at Fort Wadsworth, N. Y. H. S. O. 213, Military Division of the Atlantic, October 22, 1875.

Koerper, E. A., Assistant Surgeon.—Ordered before Army Medical Board, New York City, for examination for promotion, and, upon its completion, to report in person to the commanding general, Department of the Platte, for assignment to duty. S. O. 226, A. G. O., November 8, 1875.

O'Reilly, R. M., Assistant Surgeon.—Assigned to duty at Fort Ontario, N. Y., as Post Surgeon. S. O. 227, Military Division of the Atlantic, November 12, 1875.

Heizmann, C. L., Assistant Surgeon.—To report to the commanding general, Military Division of the Atlantic, for assignment to duty. S. O. 226, C. S., A. G. O.

White, R. H., Assistant Surgeon.—Relieved from duty in Military Division of the Atlantic, and to report in person to the commanding general, Department of Texas, for assignment to duty. S. O. 226, C. S., A. G. O.

Monroe, F. L. B., Assistant Surgeon.—Granted leave of absence to December 31, 1875, and his resignation accepted by the President, to take effect December 31, 1875. S. O. 222, A. G. O., November 2, 1875.

King, J. H. T., Assistant Surgeon.—Ordered before the Army Medical Board, New York City, for examination for promotion, and, upon its completion, to report to the commanding general, Department of Texas, for assignment to duty. S. O. 226, C. S., A. G. O.

Delany, A., Assistant Surgeon.—Assigned to duty at McPherson Barracks, Atlanta, Ga. S. O. 156, C. S., Department of the South.

Hall, J. D., Assistant Surgeon.—To report to the commanding general, Military Division of the Atlantic, for assignment to duty. S. O. 226, C. S., A. G. O.

Cowdrey, S. G., Assistant Surgeon.—To accompany Fifth Regiment of Artillery to Department of the Gulf, and on arrival there report by letter to the commanding general of that Department for assignment to duty. S. O. 226, C. S., A. G. O.

Dickson, J. M., Assistant Surgeon.—When relieved by Assistant-Surgeon Woodhull, assigned to duty at Huntsville, Ala. S. O. 156, C. S., Department of the South.

Byrne, C. B., Assistant Surgeon.—Assigned to duty at Fort Brown, Tex. S. O. 201, Department of Texas, October 23, 1875.

Hoff, J. V. R., Assistant Surgeon.—When relieved by Assistant-Surgeon Jaquett, assigned to duty at Fort McPherson, Neb. S. O. 113, Department of the Platte, October 18, 1875.

Skinner, J. O., Assistant Surgeon.—Granted leave of absence for two months, and, on its expiration, assigned to duty as Post Surgeon at Yorkville, S. C. S. O. 33, Department of the South, October 23, 1875.

Comegys, E. T., Assistant Surgeon.—Assigned to temporary duty at Fort Hamilton, N. Y. H. S. O. 213, C. S., Military Division of the Atlantic.

Hall, W. R., Assistant Surgeon.—Relieved from duty in Military Division of the Atlantic, and to report to the commanding general, Department of the Columbia, for assignment to duty. S. O. 226, C. S., A. G. O.

Torney, G. H., Assistant Surgeon.—To accompany Fifth Regiment of Artillery to Department of the Gulf, and, upon arrival there, to report by letter to the commanding general of that Department for assignment to duty. S. O. 226, C. S., A. G. O.

Crampton, L. W., Assistant Surgeon.—Assigned to duty at Natchitoches, La. S. O. 198, Department of the Gulf, November 4, 1875.

Rosson, R. L.—Relieved from duty in Military Division of the Atlantic, and to report to the commanding officer, Department of Arizona, for assignment to duty. S. O. 226, C. S., A. G. O.

Obituary.

Dr. Daniel Egbert, medical director of the United States Navy, died on Sunday evening, October 24th, aged seventy-seven years, from an attack of pneumonia. Deceased was one of the oldest surgeons in the United States Navy, having entered the service, as an assistant, August 21, 1829. Dr. Egbert was a native of this city, and was appointed to the medical service of the Navy from this State. His name stood tenth on the list of medical directors on the retired list. On the 21st of December, 1861, he was retired as surgeon, the rank of medical director being conferred subsequently. During his active service he spent thirteen years at sea. Since his retirement he had lived in Philadelphia.—*Medical and Surgical Reporter.*

Prof. Lorain, of the Faculty of Medicine of Paris, died suddenly October 24th, in the forty-eighth year of his age. Dr. Lorain was physician to La Pitié Hospital, and was highly esteemed by his associates. He had an extensive practice, and was a general favorite both in and out of the profession.

William R. Beaumont, M. D., F. R. C. S., England, died in Toronto, Canada, October 12th, aged seventy-two years. Dr. Beaumont since 1841 had occupied a prominent position in Toronto as a surgeon and general practitioner, and was for many years Professor of Surgery in what is now the University of Toronto.

INDEX TO VOLUME XXII.

PAGE
Abscess of Liver opening into Pleura and Bronchi, . . . 620
Abscess of Liver, Case of Multiple, ... 166
Abscess, Perityphlitic, Case of, ... 510
Abscess of Brain ; Otorrhœa, ... 276
Absence of Uterus in the Hernia of Ovaries, . . . 206
Acholia, ... 431
Administration of Medicines through Mother's Milk, . . 431
Aloes, the Resin of, ... 307
Alveolar Processes, Primitive Absorption of, . . . 658
American Ophthalmic Congress, ... 330
American Neurological Association, Proceedings of, . . 60
American Doctors abroad, ... 328
Amblyopia, Toxic, ... 247
Amputation at Shoulder-Joint, ... 275
Anastomosis of Extensor Tendons of Hand, . . . 653
Anchylosis of Temporo-Maxillary Articulation, etc., . . 45
Anchylosis of Elbow-Joint benefited by Injury, . . . 274
Aneurism, Aortic, ... 266
Aneurism of Popliteal Artery, treated by Flexion, . . . 406
Aneurism of Aorta, simulating Aneurism of Innominate, . 172
Aneurism of Carotid Artery, ... 66
Aneurism of Popliteal treated by Flexion, . . . 407
Aneurism of External Carotid cured by Pressure, . . . 81
Ann Arbor Medical College, ... 101
Anthropology, Study of 669
Antiphlogistic Method of dressing Operation-Wounds, . . 543
Aortitis, Chronic, ... 430
Aphonia Spastica 92
Apomorphia, ... 512
Appointments, Honors, etc., . . 100, 209, 326, 440, 550, 662
Army Intelligence, . . . 110, 222, 333, 446, 558, 669
Arnica, Erysipelas from Application of, ... 326
Arsenic Eaters 664
Arthritis, Dry Chronic, ... 264
Artesian Well, Water from, ... 515
Aspiration in Pleurisy, Death following, . . . 293

PAGE
Association of Confederate Surgeons, ... 665
Atkinson, J. E., M. D., on Fibroma Molluscum, . . . 601
Atresia of External Auditory Canal, ... 545
Atmospheric Pressure in the Joints, ... 105
Australian Medical Union, ... 215
Avulsion of Tuberosity of Tibia, . . . 653

Bacteria and their Septic Influence, etc., ... 113
Bennett, The late Dr. J. Hughes, ... 664
Books and Pamphlets received, . . . 77, 185, 289, 409, 539, 648
Bone-Dust as Food, ... 106
Boston Medical Library, ... 445
Boston Society of Medical Sciences, ... 514
Breasts, Strapping, to arrest Lactation, ... 501
Breast, Scirrhous, ... 67
Breast, Pediculated Tumor of, ... 66
Bright's Disease, Prize Essay on, ... 219
British Association for the Advancement of Science, . . . 553
Bromide of Potassium in Amblyopia, ... 439
Bromide of Potassium in Ulcerated Malignant Tumors, . . . 548
Bromine, Alcoholic Solution in Uterine Cancer, . . . 325
Bronchial Gland, Rupture of Degenerated, ... 206
Bronzed Skin, ... 319
Bullet-Wound of Stomach and Kidney, ... 291
Bull, Dr. Charles S., on Toxic Amblyopia, ... 247

Cæsarean Section, Case of, ... 190
Callus on Rabbit's Leg, Specimen of, ... 516
Canada Medical Association, ... 552
Cancer of Stomach, Suspected, relieved by Milk-Diet, . . 277
Cancer of Stomach and Liver, ... 171
Cancer of Stomach; Metastasis to Liver and Lungs, . . . 660
Carcinoma from a Clinical Stand-point, ... 323
Caries of Vertebræ; Atrophy of Cord, ... 527
Carotid Artery, Aneurism of, ... 66
Catarrh, Post-nasal, ... 518
Causes of Death after Operations. By Dr. T. R. Varick, . . 367
Cerebral Rheumatism, Treatment of, ... 439
Cervical Glands, Hypodermic Treatment of Enlarged, . . . 85
Charlatanism abroad, ... 102
Chloroform, Deaths from, ... 211, 328, 663
Chloroform and Ether in Obstetric Practice, ... 329
Chloral Hydrate, the Use of, ... 432
Chronic Ulcers, Pathology and Treatment of, ... 1
Chronic Scrofulous Angina, ... 87

PAGE

Cicatricial Bands, Case of Extensive, 164
Clinic at Woman's Hospital. By Dr. Emmet, 54
Coagulation of the Blood, 444
Complete Division of Larynx and Œsophagus, 654
Confederate Surgeons, Association of, 665
Congenital Dislocation of Knee-Joint, 542
Connecticut State Medical Society, 330
Contracted Pelvis, Treatment in. By Dr. J. E. Taylor, 522
Corrections, 408, 442, 553, 627
Correspondence, 220, 513
Craniometery, Intra-Uterine, 297
Croup, Treatment of True Membranous, 387
Crusted Scabies, Cases of, 655
Cyanides in Articular Rheumatism, 657
Cysts on Posterior Wall of the Bladder, 436

Deaths from Chloroform, 211, 328, 663
Death from Ether, 105, 215
Diagnosis, New Aids to, 109
Diaphragmatic Hernia, Case of, 526
Diphtheria, Quinine as a Gargle in, 418
Diseases of Women, Lecture on. By Dr. Thomas, 504
Dislocation of Shoulder, Reduction of, 652
Dose, the Continued and the Frequent, 300
Double Hernia, Case of, by James S. Green, M. D., 39
Double Voice, 208
Dysmenorrhœa, Membranous, 509
Dysmenorrhœa, Obstructive, Emmet on, 155

Earth-Treatment in Ulcers, 512
Eclampsia, Treatment of, 192
Education in Siberia, 553
Elastic Ligature, Removal of Breast by, 325
Elsberg, Louis, M. D., on Pneumatometry, 469
Empyema, Death from Dysentery, 276
Endocarditis, Acute, in Acute Miliary Tuberculosis, 198
Epithelioma of Conjunctiva, 67
Epithelioma of the Lip, 629
Epilepsy, Ammonio-Sulphate of Copper in, 207
Erysipelas, German Authors on, 99
Erysipelas, Treatment of, by Turpentine, 208
Erythema and Intertrigo, Treatment of, by Collodion, 282
Ether, Death from, 105, 215
Extra Fees, 445
Extravasation of Urine; External Perineal Urethrotomy, 619

PAGE
Fatty Tumor, 530
Faxton Hospital, Utica, 330
Fevers, The Use of Water in, 16
Fibroma Molluscum. By J. E. Atkinson, M. D., 601
Fibroids, Uterine, 169
Fibro-Cystic Tumors of the Uterus, 105
Fistula, Vesico-Vaginal, a New Instrunent for, 259
Fractures, Treatment of, by Plaster-of-Paris Bandage, 278
Fractures, Treatment of Compound Comminuted, 619
Fracture of External Condyle of Humerus, 407
Fracture of the Spine, Hutchinson on, 79
Fracture of Patella, Treatment of, 81
French Medical Association, 104
French Prizes, New, 554

Gage, The late Dr. R. M., 665
Gallstone, Case of, 270
Galactorrhœa in Old Age, 440
Gallaher, Thomas J., M. D., on Transfusion of Blood, 581
Galvano-Puncture and Electrolysis, 380
Gangrene of Extremities, Symmetric, 204
Gangrene of Thigh, Repeated Spontaneous, 201
Going backward, 442
Glycosuria, A New Form of, 109

Hamilton, Alexander, M. D., Report of Clinics, 264
Health of Medical Students, 551
Heart, Treatment of Disease of, 218
Hemiplegia, Use of Strychnia in, 511
Hemiplegia, Use of Ergot in, 511
Hernia, Case of Double, 39
Hernia, Case of Strangulated Femoral, 44
Herpes Zoster of the Shoulder, 549
Homœopathic Problem in Michigan, The, 104
Horse-hair for Sutures, 292
Hot Water, The Use of, in Injuries, 158
Hyaloid Artery, Report of Three Cases of, 42
Hydatid Cyst discharged with Urine, 437
Hysteria, Ovarian Compression in, 661

Iceland, The Diseases of, 93
Ignipuncture in Treatment of Hordeiform Cysts, 651
Illinois State Medical Society, 103
Incontinence of Urine, Cure of, 282
Indiana State Medical Society, 101

PAGE
Induction Apparatus, A New, 515
Infant born with Teeth, 444
Intestines, Protrusion of, 274
Intestinal Obstruction, Two Cases of. By J. S. Green, M. D., 610
Intestinal Juice, The, 195
Intestinal Obstruction, with Remarks on Intussusception, 412
Intussusception, Case of, 272
International Congress of Physicians, 552

Jaborandi, Experiments with, 512
Janeway, Dr. E. G., on Thoracic Aneurism, 400
Journalistic Notes, 104, 212, 329, 554, 662

Kamala, 322
Kammerer, The Late Dr., 551
Kentucky School of Medicine, 215
Killed and Wounded on English Railways, 330
Krackowizer, The Late Dr., 556, 668
Krackowizer, Memorial of Dr. Ernst, 634

Lactation, Strapping Breasts to arrest, 501
Large Medical Classes, 442
Larynx, Cases of Extirpation of, 83, 187
Larynx and Œsophagus, Complete Division of, 654
Laryngoscope, The Inventor of the, 107
Laryngology, Report No. III. on, 420
Laryngotomy, Case of, in Diphtheria, 510
Leucocythæmia, Case of; Transfusion, 395
Liebig's Meat Extract, 106
Ligature of Main Artery to arrest Traumatic Inflammation, 543
Lithotomy; Hæmorrhage into Bladder, 628
Local Œdema in Heart-Disease, 438
London Clinics, 264
Longevity in England, 215
Lower Jaw, Necrosis of, 67
Lumbo-Colotomy, 277
Lymph-Adenoma, 530

Malignant Disease of Stomach; Apoplexy, 622
Malignant Diseases of Rectum, 622
Malignant Pustule, 208
Malignant Tumor in Groin, etc., 627
Mancona, The Bark of, 222
Massage, 313
Massage, Neuralgia cured by, 99

PAGE
Medical Society of the County of New York, 68, 173, 518, 636, 666
Medical Register of New York, ... 327, 557
Medical Society of North Carolina, ... 213
Medical Students in London, ... 665
Medical Term, A New, ... 330
Medico-Legal Society, Appeal from the, ... 665
Melanosis, Case of, ... 510
Memorial of John Hunter, ... 445
Mercury, A Heavy Dose of, ... 445
Michigan State Medical Society, ... 213
Micrococcus and Bacteria in Walls of Hospital Wards, . . 547
Milk, Prevention of the Formation of, ... 167
Mitral Valve, Stenosis of the, ... 172
Morphine-Habit, the, ... 209
Morphine Injections in Dyspnœa, ... 434
Munson, W. W., M. D., on strapping Breasts to arrest Lactation, 501

Nasal Polypi, Tincture of Iron as a Cure for, . . . 91
Nævi, Scarless Eradication of, ... 292
Necrosis of Bone without Involucrum, ... 528
Necrosis of Bones of Upper Jaw; Operation, . . 408
Necrosis of Lower Jaw, ... 67
Nervous System of Children, A. Jacobi, M. D., on, . . 629
Neuralgia simulating Angina, ... 88
Neuralgia cured by Nerve-stretching, ... 544
Neuralgia in the Mammary Gland, ... 326
Neuralgia cured by Massage, ... 99
Neuroma, Multiplex; Cure by Neurectomy, . . . 435
New Hampshire Medical Society, ... 215
New Jersey State Medical Society, ... 102
New Medical School in Glasgow, ... 442
New Medical Law for Quebec, ... 664
New York Academy of Medicine, . . . 70, 164, 522, 634
Nitrite of Amyl in Threatened Death from Ether or Chloroform, 292
Nitrite of Amyl in Sea-Sickness, ... 416
Notes of Hospital Practice, . . 54, 155, 274, 400, 509, 619
Nurses, School for, ... 218

Obituary Notices:
  Allan, Dr. Ira, ... 448
  Beaumont, William R., M. D., ... 672
  Bennett, Dr. John Hughes, ... 560
  Bryant, Dr. George Lyng, ... 224
  Churchill, John, ... 448
  Clarke, James F., M. R. C. S., ... 336
  Demarquay, M., ... 224

OBITUARY NOTICES: PAGE
  Duchenne, Dr., ... 560
  Egbert, Dr. Daniel, U. S. N., ... 672
  Fleming, Dr. Alexander, ... 560
  Franklin, Henry, C. B., ... 448
  Headland, Dr. F. W., ... 560
  Hey, William, F. R. C. S., ... 112
  Krackowizer, Dr. Ernst, ... 559
  Latham, Dr. Peter Mere, ... 442
  Lorain, Prof., ... 678
  Maunsell, Dr. Toler T., ... 560
  Peet, Dr. George W., ... 560
  Stone, Dr. Horatio, ... 559
  Swift, Foster, M. D., ... 112
  Walker, Dr. William T., ... 335
Obscure Tumor of Neck in Child, ... 633
Obstetrical Cases, Summary of One Thousand Consecutive, . 188
Opium-Habit, A Sure Cure for the, ... 553
Ophthalmology, International Congress of, . . . 217
Osseous Transplantation, ... 433
Ossification of the Muscles, ... 529
Ovarian Tumor, ... 527
Ovariotomy complicated with Pregnancy, . . . 190
Ovariotomy in Edinburgh, ... 332

Pancreas, Bloody Tumor of, ... 170
Pancreas, Absence of, ... 110
Paraplegia, the Result of a Fall, ... 275
Paris Hospital, the New, ... 552
Paris Winter Lectures, ... 666
Patella, Treatment of Fracture of, ... 81
Pathological Society of New York, . . . 65, 168, 526, 623
Pediculated Tumor of Breast; Papilloma, . . . 66
Penis, Luxation of, ... 321
Penis, Excrescence from the, ... 171
Pennsylvania State Medical Society, ... 211
Perinæum, Rupture of, Dr. Noeggerath on, . . . 70
Peritonitis from Abortion; Death, ... 623
Pernicious Progressive Anæmia, ... 200
Persistent Hyaloid Artery, Three Cases of, ... 42
Pharynx, Removal of Foreign Body from, . . . 88
Phrenodynia, ... 204
Piffard, H. G., M. D., Histiology of the Scrofulides, . . 145
Pistol-Wound of Skull, Penetrating, ... 407
Placenta Prævia, ... 173
Placental Hæmatocele, Case of, ... 522

PAGE

Plaster Casts of Neck of the Uterus, 98
Pleurisy, with Hæmorrhage into the Sac, 67
Pneumonia, Some Conditions under which it proves fatal, 68
Pneumonia with Empyema, 66
Pneumatometry. By Louis Elsberg, M. D., 469
Pneumatometry in Disease, 525
Poisonous Coloring Matters in Clothing, 199
Poisons which interest the Surgeon. W. H. Van Buren, M. D., 449, 561
Portable Bathing Apparatus, 443
Post-Nasal Catarrh, Dr. Beverly Robinson on, 518
Post-Pharyngeal Abscess; Death from Asphyxia, 626
Post-Partum Hæmorrhage, Prevention of, by Iron during Pregnancy, 294
Pregnancy with Complete Hymen, 202
Presbyterian Hospital, The, 214, 331
Prize of the Medical Society of London, 669
Progress of Medicine, Reports on, 79, 187, 291, 411, 542, 651
Prophylactic in Cholera Infantum, 661
Puerperal Fever, Genesis of an Epidemic of, 520
Pupil, State of, during Anæsthesia from Chloroform, 549
Purgatives, Hypodermic Administration of, 205
Purulent Matter, Migration of, 165
Pyæmia, Autopsy in Case of, 65

Quadruplets, Case of, 107
Quebec, New Medical Law for, 664
Quinine, Hypodermic Use of, 110
Quinine as a Gargle in Diphtheria, etc., 418

Rare Chance, A, 105
Register, The Medical, 327, 557
Report on Laryngology. No. II., 82
Report on Therapeutics, 633
Resection of the Knee after Gun-shot Wound, 187
Reviews and Bibliographical Notes:
  A Text-Book of Human Physiology. By Austin Flint, Jr., M. D., 636
  Annual Report of Supervising Surgeon of Marine Hospital Service, 77
  Annual Report of the Board of Health of Michigan, 75
  Compendium der neueren medicinischen Wissenschaften. Dr. Bernard Krauss, 184
  Chronic Infectious Diseases, 174
  Clinical Lectures and Essays. By Sir James Paget, Bart., 288
  Diseases of the Heart and Aorta. By Thos. Hayden, M. D., etc., 537
  Importancia Clínica de la Temperatura en la Fiebre Tifoidea. By J. A. Ledesma, 538

REVIEWS AND BIBLIOGRAPHICAL NOTES: PAGE
Infantile Spinal Paralysis. By E. C. Seguin, . . 536
Lectures on Prescriptions and the Art of Prescribing. By W. Handsel Griffiths, ... 286
Lectures on Diseases of the Nervous System. By Jerome Bauduy, M. D., ... 645
Manual of Comparative Anatomy and Physiology. By S. Messenger Bradley, F. R. C. S., ... 185
Manual of Diet in Health and Disease. By Thomas King Chambers, M. D., etc., ... 283
Manual of Pathological Anatomy. By C. Handfield Jones, Edward H. Sieveking, and Joseph Frank Payne, . . 183
On Paralysis from Brain-Disease in its Common Forms. H. Charlton Bastian, M. D., F. R. C. S., ... 285
Physician's Visiting List. Lindsay & Blakiston, . . 648
Practical Hints on Selection and Use of the Microscope. By John Phin, ... 173
Report on the Hygiene of the United States Army, . . 284
Report of Microscopical and Physiological Researches into the Nature of Agents producing Cholera. By T. R. Lewis, M. D., and D. D. Cunningham, M. B., . . . 644
Researches into the Antagonism of Medicines. By John Hughes Bennett, M. D., ... 535
St. George's Hospital Reports, ... 72
Spinal Paralysis of the Adult. By E. C. Seguin, M. D., . 536
Sixth Annual Report of the Board of Health of Massachusetts, 532
The Treatment of Nervous Diseases by Electricity. By Friedrich Fieber, ... 539
Till Retroflexionernas Aetiologi och Therapi. Dr. Fredrik Eklund, ... 287
The Forces which carry on the Circulation. By Andrew Buchanan, M. D., ... 647
The Pathological Significance of Nematode Hæmatozoa. By T. R. Lewis, M. B., ... 533
The Management of Eczema. By L. Duncan Bulkley, M. D., 185
The Toner Lectures, No. IV. A Study of the Nature and Mechanism of Fever. By Horatio C. Wood, M. D., . 642
Transactions of the College of Physicians of Philadelphia. Third Series, Vol. I., ... 640
The Cholera Epidemic of 1873 in the United States, . . 646
Winter Homes for Invalids. By Joseph W. Howe, M. D., . 648
Rheumatism, Acute, Hot Packing in, ... 276
Rheumatism, Treatment of, by Hot Packing, ... 509
Rheumic Diathesis in Dermatology, ... 635
Ruptured Colon, ... 412

PAGE
Rupture of the Perinæum, Dr. Noeggerath on, . . . 70
Rupture of Urethra. By J. B. Hamilton, M. D., . . 616

St. Mary's Free Hospital for Children, ... 332
Salicylic Acid, Mode of dissolving, ... 329
Salicin as an Enteric Tonic, ... 389
Sanitary Work in the State of New York, . . . 554
Sanitary Association, the German, ... 221
Sarcoma, Specimens of Round-Cell, ... 514
Sarcoma of Arm, Congenital, ... 527
Sayre, Lewis A., M. D., on Deformities of the Spine, . . 225
Scabies, Cases of Crusted, ... 655
Scurvy, Etiology and Nature of, ... 194
Scrofulous Angina, ... 87
Scrofulides, the Histology of the, ... 145
School for Nurses, ... 511
Scarlatina Anasarca, Treatment of, ... 309
Sea-Sickness, Nitrite of Amyl in, ... 416
Sensibility, Case of Partial Loss of, ... 516
Separation of Anterior Wall of Rectum, ... 324
Simon, Prof., on the Female Urinary Bladder, . . . 337
Singular Obstetric Custom, ... 102
Softening of the Brain ; Cross-Paralysis, . . . 531
Soft Palate, Unilateral Paralysis of, ... 87
Sore-Throat, Local use of Quinine in, ... 513
Southern Medical Associations, ... 441
Special Hospitals, ... 552
Spine, Posterior Angular Curvature of, ... 225
Spinal Irritation, ... 434
Spine, Deformities of. By L. A. Sayre, M. D., . . . 225
Splint, Improved. By G. Wackerhagen, M. D., . . 262
Spleen, Treatment of Tumefaction of, ... 437
Spleen, Innervation of, in Leucocythæmia, . . . 429
Stab-Wound causing Paraplegia, ... 274
Stab-Wound of Abdomen ; Recovery, ... 407
Stimson, L. A., M. D., on Bacteria, ... 113
Stomach, Perforating Ulcer of, ... 165
Strangulated Hernia in an Infant ; Aspiration, . . . 411
Strangulated Femoral Hernia, Operation for, . . . 398
Strangulated Hernia ; Orchitis, ... 407
Styptic Cotton, ... 557
Sudden Deaths after Paracentesis Thoracis, ... 652
Super-Alkalization of the Blood, ... 436
Surgery, Reports on Progress of, . 79, 187, 291, 411, 542, 651
Surgery of the Arteries, ... 331

PAGE
Surgical Tendencies, Relation of, to Surgical Advances, 31
Surgical Statistics, 80
Swift, The Late Dr. Foster, 525
Syphilis as a Cause of Phthisis, 320
Syphilis, Transmission of, from Child to Nurse, 517
Syphilitic Ghosts, 104
Syphilis, Action of Opium in, 300

Tape-Worm, Removal of, by Copaiba, 625
Testicle, Disease of, 625
Testicle, Supposed, removed from Hermaphrodite, 555
Tetanus treated with Chloral, 393
Tetanus, Absolute Repose in, 203
Third Dentition, 333
Thoracic Aneurism. Lecture by Prof. Janeway, 400
Thomas, T. Gaillard, M. D., on Diseases of Women, 504
Tonsils, Excision of, 90, 108
Toxic Ambylopia. By C. S. Bull, M. D., 247
Trachea, Use of Remedies within, 512
Transfusion of Blood. By T. J. Gallaher, M. D., 581
Transfusion with Lamb's Blood, 207
Transmission of Syphilis from Child to Nurse, 517
Translations, 93, 192, 313, 429, 545, 655
Tumor, Ovarian, 527
Tumor of Musculo-Spiral Nerve; Removal, 627
Tumor of Neck; Sudden Death, 528
Tumor of Stomach, 65
Twin Labor, A Complicated, 191
Typhoid Fever, Treatment of, in Mount Sinai Hospital, 621
Typhoid Fever, Use of Water in, 197

Ulcers, Pathology and Treatment of Chronic, 1
Underground Railway, Complaint against, 442
University of Michigan, 553
Urethra, Rupture of, 616
Urethral Stricture, Cause of, 207
Urinary Bladder, the Female, New Mode of examining, 337
Urine, Incontinence of, cured, 282
Urticaria, 557
Urticaria treated by Copaiba, 620
Uterine Fibroids, Treatment of, by Dr. Emmet, 54
Uterine Fibroids, 169
Utopia, A Possible, 664

Vaccination with Fatal Result, 109

PAGE
Vaccination, A History of, ... 103
Vaccine Pustules, Effect of Number of, ... 659
Vaginal Douche, A New, ... 518
Valerinate of Caffeine, ... 442
Van Buren, W. H., M. D., on Septic Poisons, . . . 449, 561
Varix, Local Treatment of, by Perchloride of Iron, . . 440
Vesico-Vaginal Fistula, Cure of, by Caustics, . . . 221
Vivisection, Royal Commission on, ... 332
Volta's Brain, Weight of, ... 103

Walker, The Late Dr. W. T., ... 667
Water, the Use of, in Fevers, ... 16
Water-Supply of Cities, ... 214
Watson, B. A., M. D., on Chronic Ulcers, . . . 1
Wells, Horace, Monument to, ... 104
Wens in Unusual Places, ... 515
West Virginia State Medical Society, ... 214
Whooping-Cough, Treatment of, ... 438
Wisconsin State Medical Society, ... 213
Woman's Hospital, A New, ... 665
Writer's Palsy, ... 631

Zoölogical Station at Naples, The New, ... 106

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CONTENTS.

ORIGINAL COMMUNICATIONS.

PAGE
I. B. A. Watson, M. D.—The Pathology and Treatment of Chronic Ulcers 1
II. R. Tauszky, M. D.—The Use of Water in Fevers 16
III. W. R. Bartlett, M. D.—On the Relation of Surgical Tendencies to Surgical Advances. 31

CLINICAL RECORDS FROM PRIVATE AND HOSPITAL PRACTICE.

I. A Case of Double Hernia on the Same Side; Recovery. By James S. Green, M. D.... 39
II. Persistent Hyaloid Artery. Report of Three Cases. By Peter A. Callan, M. D...... 42
III. Strangulated Femoral Hernia; Operation; Cure. By D. C. Jones, M. D 44
IV. Anchylosis of Temporo-Maxillary Articulation of Long Standing: Fracture of Right Condyle; Atrophy of the Depressors and Contraction of the Elevator Muscle of the Inferior Maxillary. By D. H. Goodwillie, M. D., D. D. S 45

Notes of Hospital Practice 54
Proceedings of Societies 60

BIBLIOGRAPHICAL AND LITERARY NOTES.

I. St. George's Hospital Reports. Dr. Ogle 72
II. Second Annual Report of the Secretary of the State Board of Health of the State of Michigan 75
III. Annual Report of the Supervising Surgeon of the Marine Hospital Service of the United States. Dr. Woodworth 77

Reports on the Progress of Medicine:
Surgery. By Samuel B. Ward, M. D 79
Laryngology. By Geo. M. Lefferts, M. D 82
Translations 93
Miscellany 100
Army Intelligence 110
Obituary 112

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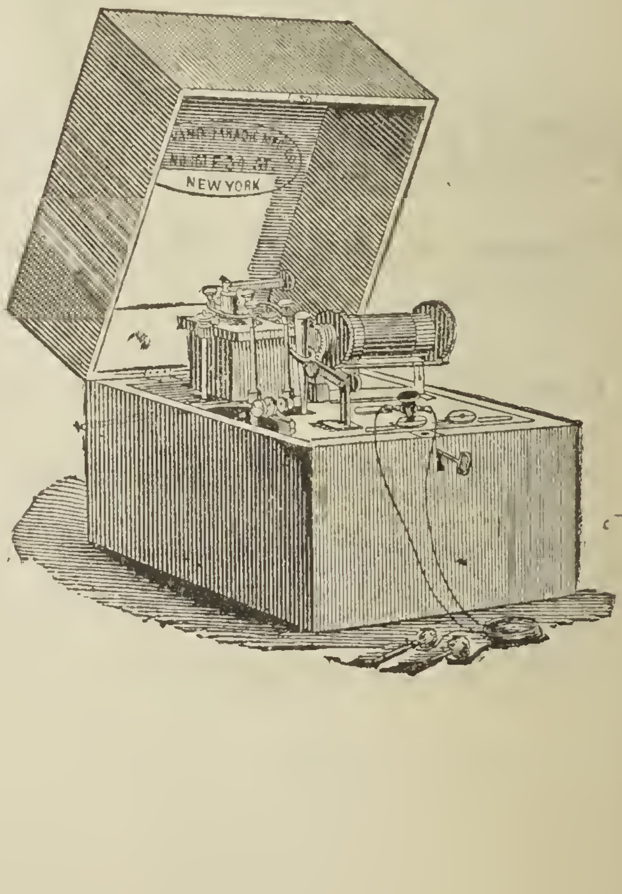
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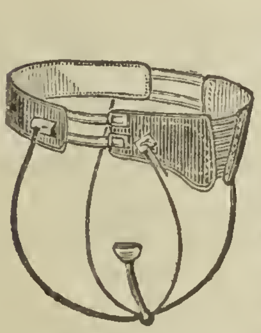

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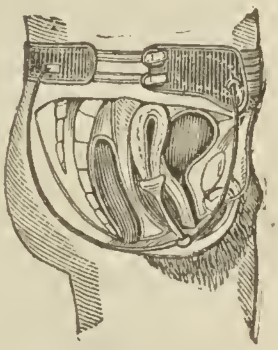

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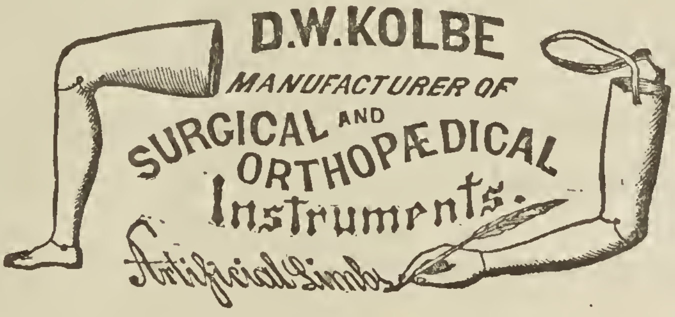

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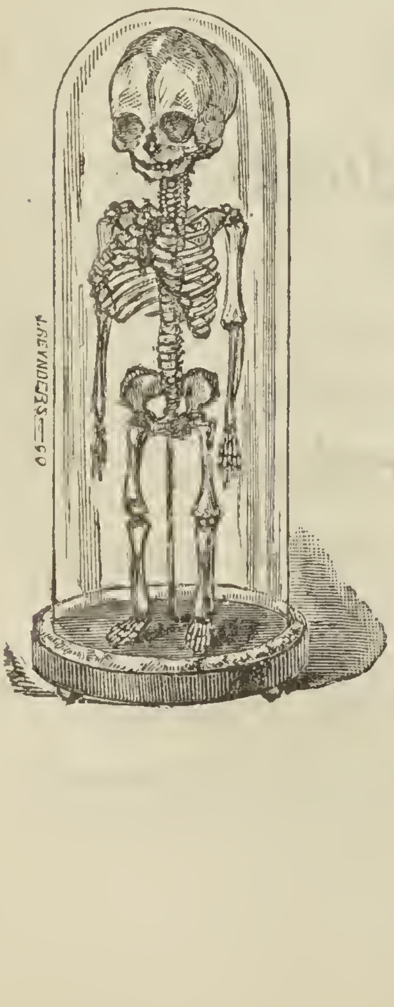

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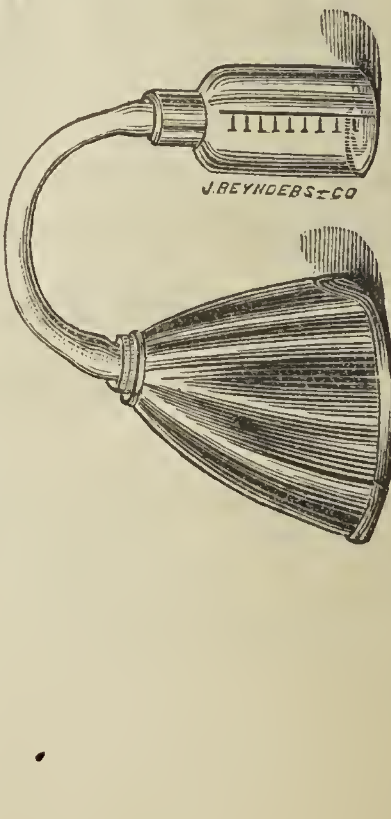

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In the case of children, I employ it almost exclusively, and deem its action upon them more beneficial than that of the time-honored Sulphate.

W. C. SCHULTZE, M.D.,
Marengo, Iowa.

CINCHO-QUININE in my practice has given the best of results, being in my estimation far superior to Sulphate of Quinine, and has many advantages over the Sulphate. G. INGALLS, M.D.,
Northampton, Mass.

Your CINCHO-QUININE I have used with marked success. I prefer it in every way to the Sulphate.

D. MACKAY, M.D., Dallas, Texas.

We will send a sample package for *trial*, containing fifty grains of CINCHO-QUININE, on receipt of twenty-five cents, or one ounce upon the receipt of one dollar and sixty cents, post paid. Special prices given for orders amounting to one hundred ounces and upwards.

WE MANUFACTURE CHEMICALLY PURE SALTS OF

Arsenic, Ammonium, Antimony, Barium, Bromine, Bismuth, Cerium, Calcium, Copper, Gold, Iodine, Iron, Lead, Manganese, Mercury, Nickel, Phosphorus, Potassium, Silver, Sodium, Tin, Zinc, etc.

☞ *Price List and Descriptive Catalogue furnished upon application.*

BILLINGS, CLAPP & CO., Manufacturing Chemists,

(SUCCESSORS TO JAS. R. NICHOLS & CO.)

BOSTON, MASS.

DEFRESNE'S PANCREATINE.

PANCREATINE is the active principle of the PANCREATIC FLUID, which is generally acknowledged by physiologists to be the most important of the secretions necessary for the proper **Digestion** and **Assimilation of Food,** since IT ALONE possesses the property of digesting and preparing for assimilation all the various kinds of food, whether of an **albuminoid, fibrinous, starchy,** or **fatty nature.**

PANCREATINE, therefore, becomes a **very important remedy** in a great many cases of **Indigestion, Atony of the Digestive Organs,** and various forms of **Dyspepsia,** where Pepsine and other remedies have failed.

As a Help for the Digestion of Fats, physicians will find PANCREATINE invaluable to patients who are unable to support Cod-Liver Oil or fatty substances, and are therefore deprived of their nourishing and restorative properties.

The **Dose** of DEFRESNE'S PANCREATINE is **5 to 15 grains,** according to the nature of the case, taken before or during meals. *It is sold in bottles containing half, or one ounce.*

The following PREPARATIONS of PANCREATINE are also offered:

PANCREATINE PILLS, containing 4 grains each.

PANCREATINE WINE and **ELIXIR,** given in doses of one or two table-spoonfuls.

PANCREATIC EMULSION OF COD-LIVER OIL, representing Cod-Liver Oil in a state of perfect emulsion, and readily borne by the stomach.

PANCREATIC EMULSION OF COD-LIVER OIL, with Iodide of Iron.

Mr. DEFRESNE, having made this subject a matter of special study, succeeded in obtaining Pancreatine, in a concentrated form, and possessing all the properties of the natural secretion.

☞ **DEFRESNE'S PANCREATINE should not be confounded with other articles sold under this name, which are largely composed of fecula, and do not possess the properties of pure Pancreatine.**

DUSART'S

LACTO-PHOSPHATE OF LIME.

(SYRUP AND WINE.)

LACTO-PHOSPHATE OF LIME is a new therapeutical agent, based upon the physiological researches of Mr. L. DUSART, and first proposed by him.

The publication of his work on the "Physiological Action of Phosphate of Lime" had led to the adoption of advanced views in regard to the importance of this substance in the animal economy. It is now considered necessary, not only for the **Perfection of the Bony System,** but also, and above all, for the **Formation and Alimentation of the Muscular Tissues,** and of **Cerebral Matter itself.** Under its influence the nitrogenized matter of food is transformed into muscular flesh, and upon the quantity of this substance present in the system depend the vital activity and temperature of the individual. Hence, an insufficient supply of the phosphate causes a rapid decline of the general health.

DUSART'S PREPARATIONS OF LACTO-PHOSPHATE OF LIME present to the physician the **phosphate of lime in the combination in which it exists in the stomach,** after it has been acted upon by the gastric fluid. It is, therefore, presented ready for assimilation, and hence the Lacto-Phosphate should be preferred to the ordinary bone-phosphate, which frequently is insoluble, or nearly so.

DUSART'S PREPARATIONS have been used in the hospitals of Paris with great success, and in a wide range of diseases, as: **Rachitic** and **Scrofulous Affections** in children; the **Languor** caused by too rapid a growth and development in youth; the **Debility** attendant upon old age; **Weakness in Females,** caused by the nursing of children: **Slow Convalescence**; certain forms of **Dyspepsia,** caused by the low vitality of the system In cases of **Fractures,** their use has been found to cause a more **rapid formation of the Callus,** and, in cases of wounds, the **cicatrization has been more prompt,** while its administration to children facilitates the general development, and especially the **process of Ossification and Dentition.**

DUSART'S Work on the "PHYSIOLOGICAL AND THERAPEUTIC ACTION OF PHOSPHATE OF LIME" will be sent free on application to the Agents.

E. FOUGERA & CO., New York, Agents for the U. S.

E. FOUGERA & CO.,

PHARMACISTS,

30 North William Street, New York,

Invite the attention of the medical profession to the following well-known preparations:

Fougera's Iodinized Compound Cod-Liver Oil.

The immeasurable therapeutic superiority of this Oil over all other kinds of Cod-Liver Oils sold in Europe, or in this market, is due to the addition of IODINE, BROMINE, and PHOSPHORUS.

This Oil possesses not only the nourishing properties of Cod-Liver Oil, but also the tonic, stimulant, and alterative virtues of IODINE, BROMINE, and PHOSPHORUS, which are added in such proportions as to render FOUGERA'S COD-LIVER OIL FIVE TIMES STRONGER and more efficacious than Pure Cod-Liver Oil.

Fougera's Vermifuge.

(COMP. DRAGÉES OF SANTONINE.)

Santonine, the active principle of *Semen contra* (European Wormseed), occupies the first rank among the anthelmintic remedies. In this preparation the Santonine is combined with a purgative agent under the form of a sugar-coated pill, and thus forms a pleasant and efficacious remedy, which has been used for many years. Each dragée contains one half grain of santonine and one fifth grain of gambogine.

Fougera's Ready-made Mustard Plasters.

A most useful, convenient, and desirable preparation, always ready for immediate use. Clean prompt in its action, and keeps unaltered in any climate; easily transported and pliable, so as to be applied to all parts and surfaces of the body. It is prepared of two strengths: No. 1, of pure mustard; No. 2, of half mustard. Each kind put up separately, in boxes of 10 plasters.

Fougera's Pectoral Paste.

(ICELAND MOSS, LACTUCARIUM, IPECAC., AND TOLU.)

Used with great success against nervous and convulsive Coughs, Whooping-cough, Acute Bronchitis, Chronic Catarrh, Influenza, etc.

Wakefulness, Cough, and other sufferings in Consumption, are greatly relieved by the soothing and expectorant properties of this Paste.

Fougera's Iodo-Ferro-Phosphated Elixir of Horse-Radish.

This Elixir contains Iodine, Pyrophosphate of Iron, the active principles of anti-scorbutic and aromatic plants, and acts as a *tonic*, *stimulant*, *emmenagogue*, and a *powerful regenerator of the blood*. It is an invaluable remedy for all constitutional disorders due to the impurity and poverty of the blood. One of the advantages of this new preparation consists in combining the [illegible] of Iodine and Iron without the inky taste of Iodide of Iron.

IMPORTANT TO PHYSICIANS.

THE VOLTAIC

ARMADILLO.

AN ELECTRO-MAGNETIC REMEDY FOR NERVOUS DISEASES.

ALWAYS SAFE. **ALWAYS READY FOR USE.**

No Shock or Unpleasant Sensation experienced,

BUT A CONSTANT GENTLE ELECTRIC CURRENT,

Giving to the Nerves a Gentle Stimulus,

Reviving Circulation, removing Congestion, and with it Pain and Soreness.

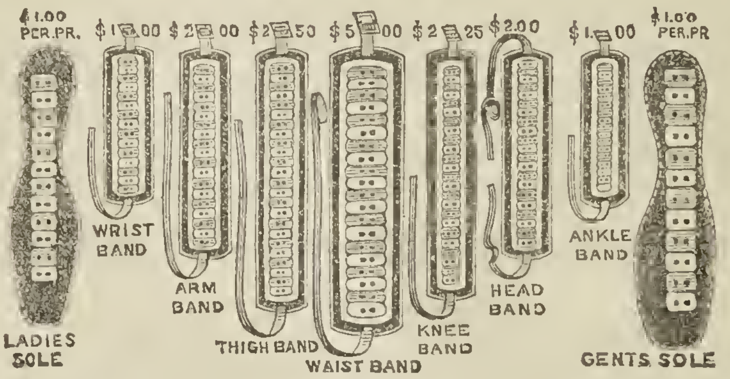
Physicians prescribe it largely for

Neuralgia,

Rheumatism,

Sciatica,

Lumbago,



Nervousness,

Weak Back,

General Debility,

&c., &c., &c.

"Precisely as we do not put ourselves on the fire, but take its heat steadily and lastingly, so we do not now take a dose of Electricity sufficient to shake us to pieces, but by these chains and bands keep up and sustain a genial warmth of the parts affected, or of the whole system. . . . Nor is there the slightest inconvenience in wearing the bands, which are made to fit any part of the body. This *constant primary current* is used to the entire satisfaction of men of high repute as scientists and physicians, among whom are Sir Charles Locock, Sir H. Holland, Sir William Ferguson, Sir J. R. Martin, Dr. Golding Bird, Dr. Thompson, Dr. Andrew Clarke, Dr. Quain, and Dr. Sieveking."—*Belgravia Magazine.*

The Armadillo is flexible, and easily applied, and can be worn with safety at any time. Ask Druggists, Surgical-Instrument Makers, or it will be sent on receipt of the price. Send for pamphlet.

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COLLEGE OF PHYSICIANS & SURGEONS,

Corner 23d St. and Fourth Avenue, New York.

SIXTY-NINTH SESSION, 1875-'76.

FACULTY OF MEDICINE.

ALONZO CLARK, M.D., *President, and Professor of Pathology and Practical Medicine.*

WILLARD PARKER, M. D., *Professor of Clinical Surgery.*

JOHN C. DALTON, M. D., *Professor of Physiology and Hygiene.*

SAMUEL St. JOHN, M. D., *Professor of Chemistry and Medical Jurisprudence.*

THOMAS M. MARKOE, M.D., *Professor of Surgery.*

T. GAILLARD THOMAS, M. D., *Professor of Obstetrics and the Diseases of Women and Children.*

JOHN T. METCALFE, M. D., *Professor Emeritus of Clinical Medicine.*

HENRY B. SANDS, M.D., *Professor of Anatomy.*

JAMES W. McLANE, M. D., *Adjunct Professor of Obstetrics and the Diseases of Women and Children.*

THOMAS T. SABINE, M. D., *Adjunct Professor of Anatomy.*

CHARLES F. CHANDLER, Ph. D., *Adjunct Professor of Chemistry.*

EDWARD CURTIS, M.D., *Professor of Materia Medica and Therapeutics.*

FRANCIS DELAFIELD, M.D., *Adjunct Lecturer on Pathology and Practical Medicine.*

JOHN G. CURTIS, M.D., *Adjunct Lecturer on Physiology and Hygiene.*

WM. DETMOLD, M.D., *Professor Emeritus of Military and Clinical Surgery.*

WILLIAM H. DRAPER, M.D., *Clinical Professor of Diseases of the Skin.*

C. R. AGNEW, M. D., *Clinical Professor of Diseases of the Eye and Ear.*

ABRAHAM JACOBI, M. D., *Clinical Professor of Diseases of Children.*

FESSENDEN N. OTIS, M. D., *Clinical Professor of Venereal Diseases.*

EDWARD C. SEGUIN, M. D., *Clinical Professor of Diseases of the Mind and Nervous System.*

CHAS. McBURNEY, M. D., *Demonstrator of Anatomy.*

CHAS. KELSEY, M.D., *Ass't Demonstrator.*

In the Plan of Instruction adopted in this Institution, Clinical Teaching constitutes an important and prominent feature, all the practical subjects treated of in the Didactic Course being fully illustrated at the bedside. In the furtherance of this object, the extensive Hospitals of New York, of which the Bellevue Hospital, the Charity Hospital, Blackwell's Island, the Roosevelt Hospital, the New York Eye and Ear Infirmary, and the Manhattan Eye and Ear Hospital, are the largest and most efficient, furnish ample means for instruction and study.

To all of these the Faculty of the College resort for the purposes of practical instruction, Cliniques being held daily in one or more of them.

Besides the Clinical Lectures given at the Hospitals, as above, there are nine Cliniques each week at the College Building.

SUMMER SESSION.

Faculty.

JAMES L. LITTLE, M. D., *Lecturer on Operative Surgery and Surgical Dressings.*

GEORGE G. WHEELOCK, M. D., *Lecturer on Physical Diagnosis.*

A. BRAYTON BALL, M. D., *Lecturer on Diseases of the Kidneys.*

FRANCIS DELAFIELD, M. D., *Lecturer on Pathological Anatomy.*

ROBERT F. WEIR, M. D., *Lecturer on Diseases of the Male Pelvic Organs.*

JOHN G. CURTIS, M. D., *Lecturer on Injuries and Diseases of the Blood-Vessels.*

The Summer Session for 1875 will commence on Monday, March 15th, and continue until the middle of June. Two Didactic Lectures will be given daily, and the Clinques held as usual.

Instruction in Practical Chemistry will be given in the Laboratory, under the supervision of Prof. Chandler, with the aid of competent assistants. Instruction will also be given in Physical Diagnosis, and Obstetrical cases furnished to members of the class. No additional charge for the above will be made to students who take the general ticket for the Summer Session.

Certificates of attendance on this course will be counted as time spent in the study of medicine, under the direction of a practitioner.

Matriculation Fee, $5; valid for the year. General ticket to all the lectures, $30. For each separate ticket, $5.

REGULAR SESSION.

The Regular Course of Lectures for the Session 1875-'76 will commence on Friday, October 1, 1875, and will continue until the following March. This course will consist of from five to six Daily Lectures in the various departments of Medicine and Surgery, both Elementary and Practical, together with Daily Clinical Lectures, delivered both at the College and at the larger Hospitals.

Matriculation Fee, $5; Fees for the full Course of Lectures by all the Professors, $140; for each separate ticket, $20; ticket of the Demonstrator of Anatomy, $10; Graduation Fee, $30.

☞ Students are requested, on their arrival in this city, to call at the College and register their names with the Clerk, Mr. Boag, who will give them all necessary information, and aid them in obtaining board.

For the Annual Catalogue and further information, address the Secretary of the Faculty, THOMAS T. SABINE, M. D., College of Physicians and Surgeons, corner of 23d Street and 4th Avenue, New York.

UNIVERSITY OF PENNSYLVANIA.

MEDICAL DEPARTMENT.

Thirty-sixth & Locust Sts., Philadelphia.

110th ANNUAL SESSION, 1875–'76.

PROFESSORS.

George B. Wood, M. D., LL. D., Emeritus Professor of Theory and Practice of Medicine.
Henry H. Smith, M. D., Emeritus Professor of Surgery.
Joseph Carson, M. D., Professor of Materia Medica and Pharmacy.
Robert E. Rogers, M. D., Professor of Chemistry.
Joseph Leidy, M. D., LL. D., Professor of Anatomy.
Francis G. Smith, M. D., Professor of the Institutes of Medicine.
Richard A. F. Penrose, M. D., Professor of Obstetrics and Diseases of Women and Children.
Alfred Stillé, M. D., Professor of Theory and Practice of Medicine.
D. Hayes Agnew, M. D., LL. D., Professor of Surgery and Clinical Surgery.
William Pepper, M. D., Clinical Professor of Medicine.
John Neill, M. D., Clinical Professor of Surgery.
William Goodell, M. D., Clinical Professsor of Diseases of Women and Children.
William F. Norris, M. D., Clinical Professor of Diseases of the Eye.
George Strawbridge, M. D., Clinical Professor of Diseases of the Ear.
Horatio C. Wood, Jr., M. D., Clinical Professor of Nervous Diseases.
Louis A. Duhring, M. D., Clinical Professor of Diseases of the Skin.
James Tyson, M. D., Professor of Morbid Anatomy and Histology.

H. Lenox Hodge, M. D., Demonstrator of Anatomy.
Charles T. Hunter, M. D., Demonstrator of Surgery.
George M. Ward, M. D., Demonstrator of Practical Chemistry.
Isaac Ott, M. D., Demonstrator of Experimental Physiology.

The Medical Faculty occupy an elegant and commodious building with ample space for Dissection-rooms and Laboratories, and for their valuable Museum, Apparatus, and Library, securing superior advantages to the student in health and facility of study. Didactic Lectures and Laboratory Instruction are given in this building, and Daily Clinics in the University Hospital, and in the Philadelphia Hospital, which are adjacent. Clinical instruction continues during the whole year, except July and August.

Matriculates in the Medical Department are entitled to attend, during the spring and summer, the lectures of the Auxiliary Faculty on Zoölogy and Comparative Anatomy, by H. Allen, M. D.; on Botany, by H. C. Wood, Jr., M. D.; on Hygiene, by H. Hartshorne, M. D.; on Medical Jurisprudence and Toxicology, by J. J. Reese, M. D.; and on Mineralogy and Geology, by S. B. Howell, M. D.

Besides the obligatory study of practical anatomy, practical courses are accessible to students in Surgery, Chemistry, Physiology, and Comparative Anatomy.

STUDENTS WHO HAVE ATTENDED TWO FULL COURSES OF LECTURES ON ANATOMY, CHEMISTRY, MATERIA MEDICA, AND THE INSTITUTES OF MEDICINE, MAY BE EXAMINED ON THOSE SUBJECTS AT THE END OF THE SECOND COURSE, AND, IF APPROVED, WILL, AT THE END OF THEIR THIRD COURSE, BE EXAMINED ONLY ON THEORY AND PRACTICE OF MEDICINE, SURGERY, AND OBSTETRICS.

The Lectures of the Session of 1875–'76 will commence on the first Monday (4th) of October, and terminate on the last day of February.

Fees.—For one full course of Lectures, $140. For each professor's ticket for one course, $20. Matriculation fee (paid once only), $5. These fees are payable in advance. Graduation fee, $30.

Letters of inquiry should be addressed to

ROBERT E. ROGERS, M. D., Dean,
P. O. Box 2838, Philadelphia.

UNIVERSITY OF THE CITY OF NEW YORK.

MEDICAL DEPARTMENT.

410 East Twenty-sixth St., opposite Bellevue Hospital, New York City.

THIRTY-FIFTH SESSION.—1875-'76.

FACULTY OF MEDICINE.

REV. HOWARD CROSBY, D. D.,
Chancellor of the University.
MARTYN PAINE, M. D., LL. D.,
Emeritus Professor of Materia Medica and Therapeutics.
ALFRED C. POST, M. D., LL. D.,
Emeritus Professor of Clinical Surgery; President of the Faculty.
CHARLES A. BUDD, M. D.,
Professor of Obstetrics.
JOHN C. DRAPER, M. D., LL. D.,
Professor of Chemistry.
ALFRED L. LOOMIS, M. D.,
Professor of Pathology and Practice of Medicine.
WILLIAM DARLING, A. M., M. D., F. R. C. S.,
Professor of Anatomy.

WILLIAM H. THOMSON, M. D.,
Professor of Materia Medica and Therapeutics.
J. W. S. ARNOLD, M. D.,
Professor of Physiology.
JOHN T. DARBY, M. D.,
Professor of Surgery.
CHARLES INSLEE PARDEE, M. D.,
Professor of Diseases of the Ear; Dean of the Faculty.
ERSKINE MASON, M. D.,
Professor of Clinical Surgery.
WALTER R. GILLETTE, M. D.,
Adjunct Professor of Obstetrics.
WILLIAM STRATFORD, M. D.,
Adjunct Professor of Chemistry.

POST-GRADUATE FACULTY.

D. B. ST. JOHN ROOSA, M. D.,
Professor of Ophthalmology and Otology.
WILLIAM A. HAMMOND, M. D.,
Professor of Diseases of the Mind and Nervous System.
STEPHEN SMITH, M. D.,
Professor of Orthopædic Surgery and Surgical Jurisprudence.

MONTROSE A. PALLEN, M. D.,
Professsor of Gynæcology.

FANEUIL D. WEISSE, M. D.,
Professor of Surgical Anatomy.

HENRY G. PIFFARD, M. D.,
Professor of Dermatology.

THE PRELIMINARY WINTER SESSION commences September 15, 1875, and continues till the opening of the regular session. It is conducted on the same plan as the Regular Winter Session.

THE REGULAR WINTER SESSION occupies four and a half months—commencing on September 29th and continuing till the middle of February. The system of instruction embraces a thorough Didactic and Clinical Course, the lectures being illustrated by two clinics each day. One of these daily clinics will be held either in Bellevue or the Charity Hospital. The location of the College building affords the greatest facilities for Hospital Clinics. It is opposite the gate of Bellevue Hospital, on Twenty-sixth street, and in close proximity to the ferry to Charity Hospital on Blackwell's Island, while the Department of Out-door Medical Charity, and the Hospital Post-mortem Rooms, are across the street. The Students of the University Medical College will be furnished with admission tickets to these establishments free of Charge. The Professors of the practical chairs are connected with one or both of these Hospitals.

Besides the Hospital clinics, there are eight clinics each week in the College building.

The Faculty desire to call attention particularly to the opportunities for dissection. *Subjects are abundant and are furnished free of charge*, and the Professor of Anatomy spends several hours each day in demonstration in the dissecting-room.

THE POST-GRADUATE COURSE will begin September 29, 1875, and continue during the Regular Winter Session.

FEES FOR THE WINTER COURSE.

For course of Lectures	$140 00
Matriculation	5 00
Demonstrator's fee, including material for dissection	10 00
Graduation Fee	30 00

FEES FOR THE SPRING COURSE.

Students who have attended the Winter Course will be admitted free of charge, Those who have not attended the Winter Course will be required to pay the Matriculation Fee and $30; and, should they decide to become pupils for the Winter, the $30 thus paid will be deducted from the price of the Winter tickets.

For the purpose of assisting meritorious individuals, the Faculty will receive a few *beneficiaries* each of whom will be required to pay $43 per annum and the Matriculation Fee.

For further particulars and circulars, address the Dean,

PROF. CHAS. INSLEE PARDEE, M. D.,

University Medical College, 410 East 26th St., New York City.

HARVARD UNIVERSITY.

MEDICAL DEPARTMENT, Boston, Mass.

NINETY-SECOND ANNUAL ANNOUNCEMENT. (1875-'76.)

FACULTY OF MEDICINE.

CHARLES W. ELIOT, LL. D., President.
CALVIN ELLIS, M. D., Prof. of Clinical Medicine, Dean.
JOHN B. S. JACKSON, M. D., Prof. of Pathol. Anatomy.
OLIVER W. HOLMES, M. D., Professor of Anatomy.
HENRY J. BIGELOW, M. D., Professor of Surgery.
JOHN E. TYLER, M. D., Professor of Mental Diseases.
CHARLES E. BUCKINGHAM, M. D., Professor of Obstetrics and Medical Jurisprudence.
FRANCIS MINOT, M. D., Hersey Professor of the Theory and Practice of Medicine.
JOHN P. REYNOLDS, M. D., Instructor in Obstetrics.
HENRY W. WILLIAMS, M. D., Prof. of Ophthalmology.
DAVID W. CHEEVER, M. D., Prof. of Clinical Surgery.
JAMES C. WHITE, M. D., Professor of Dermatology.
ROBERT T. EDES, M. D., Ass't Prof. of Materia Medica.
HENRY P. BOWDITCH, M. D., Ass't Prof. of Physiology
CHARLES B. PORTER, M. D., Demonstrator of Anatomy, and Instructor in Surgery.
FREDERICK I. KNIGHT, M. D., Instructor in Percussion, Auscultation, and Laryngoscopy.
J. COLLINS WARREN, M. D., Instructor in Surgery.
REGINALD H. FITZ, M. D., Ass't Professor of Pathological Anatomy.
THOMAS DWIGHT, Jr., M. D., Instructor in Histology.
EDWARD S. WOOD, M. D., Ass't Professor of Chemistry.
HENRY H. A. BEACH, M. D., Ass't Demonstrator of Anatomy.
WILLIAM B. HILLS, M. D., Instructor in Chemistry.

OTHER INSTRUCTORS.

FRANCIS B. GREENOUGH, M. D., and EDWARD WIGGLESWORTH. Jr., M. D., Lecturers on Syphilis.
GEORGE F. H. MARKOE, Instructor in Materia Medica.
WILLIAM L. RICHARDSON, M. D., Instructor in Obstetrics.
J. ORNE GREEN, M. D., and CLARENCE J. BLAKE, M. D., Lecturers on Otology.
JAMES R. CHADWICK, M. D., Lecturer on Diseases of Women.
CHARLES P. PUTNAM, M. D., Lecturer on Diseases of Children.
JAMES J. PUTNAM, M. D., Lecturer on Diseases of the Nervous System.

The plan of study was radically changed in 1871.* Instruction is given by lectures, recitations, clinical teaching, and practical exercises, distributed throughout the academic year. This year begins September 30, 1875, and ends on the last Wednesday in June, 1876. It is divided into two equal terms, with a recess of one week between them. Either of these two terms is more than equivalent to the former "Winter Session," as regards the amount and character of the instruction. The course of instruction has been greatly enlarged, so as to extend over three years, and has been so arranged as to carry the student progressively and systematically from one subject to another in a just and natural order. In the subjects of anatomy, histology, chemistry, and pathological anatomy, laboratory work is largely substituted for, or added to, the usual methods of instruction.

Instead of the customary oral examination for the degree of Doctor of Medicine, held at the end of the three years' period of study, a series of written examinations on all the main subjects of medical instruction has been distributed through the whole three years; and every candidate for the degree must pass a satisfactory examination in every one of the principal departments of medical instruction during his period of study.

DIVISION OF STUDIES.

For the First Year.—Anatomy, Physiology, and General Chemistry.

For the Second Year.—Medical Chemistry, Materia Medica, Pathological Anatomy, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

For the Third Year.—Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

Students are divided into three classes, according to their time of study and proficiency. Students who began their professional studies elsewhere may be admitted to advanced standing; but all persons who apply for admission to the second or third year's class, must pass an examination in the branches already pursued by the class to which they seek admission. Examinations are held in the following order:

At the end of the first year—Anatomy, Physiology, and General Chemistry.

End of second year—Medical Chemistry, Materia Medica, and Pathological Anatomy.

End of third year—Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, and Surgery.

Examinations are also held before the opening of the School, beginning September 27th.

Students who do not intend to offer themselves for a degree will also be received at any part of the course, for one term or more. Any student may obtain, without an examination, a certificate of his period of connection with the school.

REQUIREMENTS FOR A DEGREE.—Every candidate must be twenty-one years of age; must have studied medicine three full years, have spent at least one continuous year at this School, have passed the required examinations, and have presented a thesis.

COURSE FOR GRADUATES.—For the purpose of affording to those already Graduates of Medicine additional facilities for pursuing clinical, laboratory, and other studies, in such subjects as may specially interest them, the Faculty has established a course which comprises the following branches: Histology; Physiology; Medical Chemistry; Pathological Anatomy; Surgery; Auscultation, Percussion, and Laryngoscopy; Ophthalmology; Dermatology; Syphilis; Psychological Medicine; Otology; Electro-therapeutics; Gynæcology; and Obstetrics. Single branches may be pursued, and, on payment of the full fee, also the privilege of attending any of the other exercises of the Medical School, the use of the laboratories and library, and all other rights accorded by the University will be granted. Graduates of other Medical Schools who may desire to obtain the degree of M. D. at this University, will be admitted to examination for this degree after a year's study in the Graduates' Course.

FEES.—For Matriculation, $5; for the Year, $200; for one Term alone, $120; for Graduation, $30. For Graduates' Course, the fee for one year is $200; for one Term, $120; and for single courses such fees as are specified in the Catalogue. Payment in advance.

Members of any one department of Harvard University have a right to attend lectures and recitations in any other department without paying additional fees.

For further information, or Catalogue, address DR. R. H. FITZ, *Secretary*,
108 Boylston St., Boston, Mass.

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* In and after September, 1877, an examination on entrance will be required. For particulars, see Catalogue.

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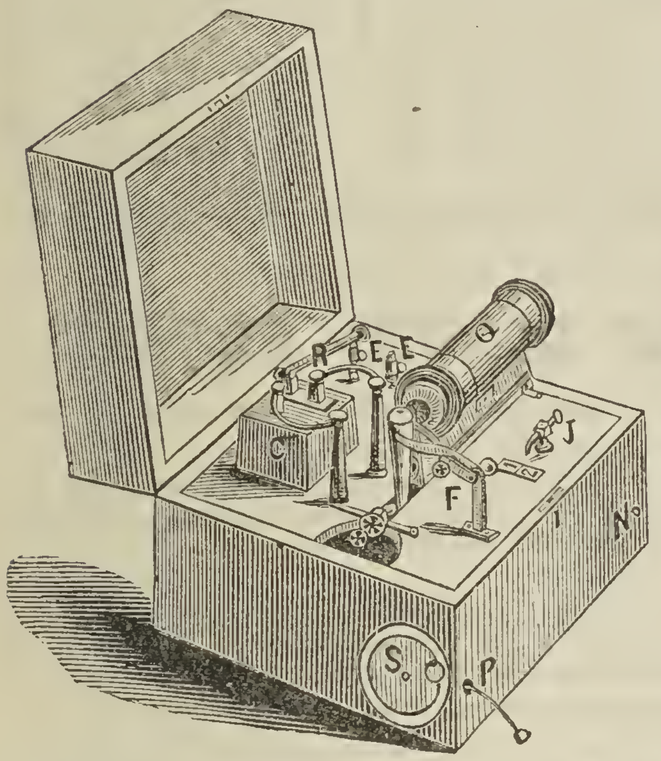
FOR MEDICAL USE.



OPINION OF PROF. DOREMUS.

Dr. Drescher.—Dear Sir: I have carefully examined your new Electro-Magnetic Machine, with its valuable and ingenious improvements. I consider the instrument the most complete, the most varied in its applications, and most convenient, I have ever seen. Wishing you the success your long experience in Galvanism and its practical applications justly deserves, I remain, yours cordially,

R. OGDEN DOREMUS.

Manufactured and Sold by **L. DRESCHER & CO.,**

154 4th Ave., near 14th St., New York.

THE

MEDICAL TIMES AND GAZETTE.

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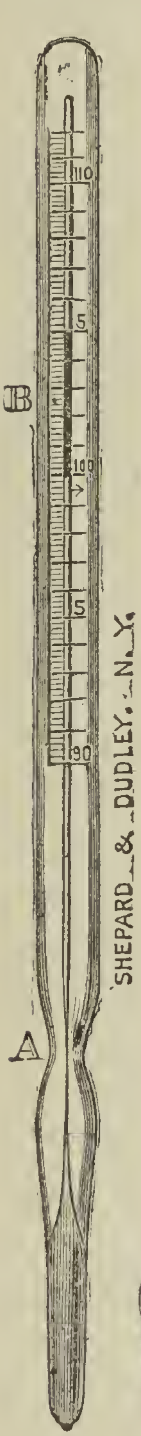

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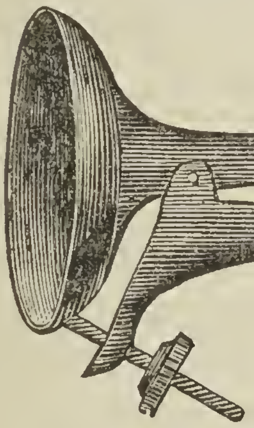

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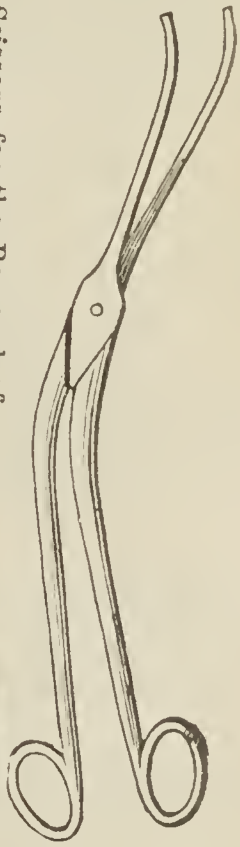

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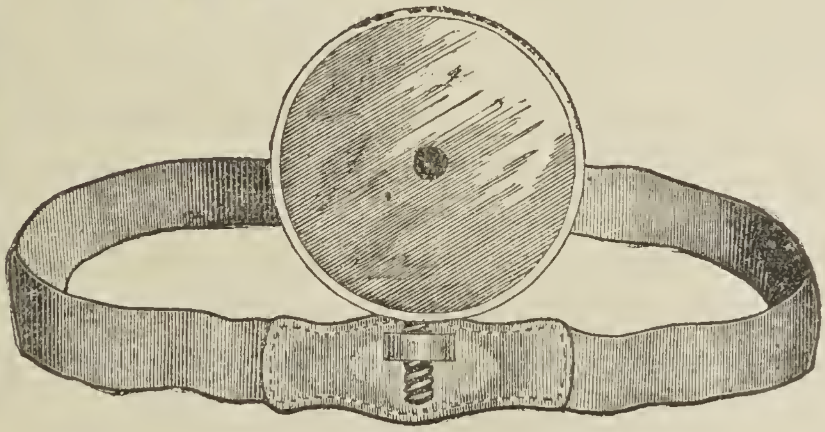

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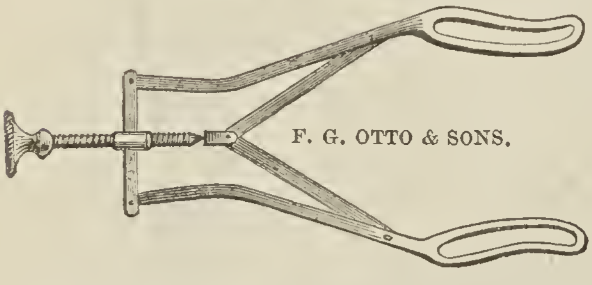
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Phosphorus, - - -	1-100 "
Ex. Cannabis Indica, -	1-16 "
Ginseng, - - - -	1 "
Carb. Iron, - - -	1 "

Dose, one to two.

A reliable and efficient Pill in Anaphrodisia, Paralysis, Neuralgia, Loss of Memory, Phthisis, and all affections of the Brain, resulting from loss of Nerve-Power.

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I find your Compound Strychnia Pills both reliable and efficient.

A. N. ALLEN, M.D.

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REED & CARNRICK, Manufacturing Pharmacists,

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Which the celebrated SELTZER SPRING of Germany has maintained during many years for the therapeutic value of its waters, is a fact well understood by the Medical Profession. The testimony of large numbers receiving benefit from their use is conclusive proof as to their efficacy.

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is an artificial combination of the essential elements of these waters, as ascertained by strict chemical analysis, discarding those substances which are inert, and retaining those only which have a positive therapeutic value.

These waters belong to that class known as ACIDULO-ALKALINE, which owe their medicinal virtues to the Carbonic Acid and to the Salines in combination. Hence they act chiefly on the digestive, renal, and nervous systems.

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we especially recommend our preparation to the careful consideration of physicians. In all disordered conditions of the digestive organs, especially when connected with hepatic derangement; in those congested states of the alimentary canal and appendages peculiar to warm seasons and tropical climates; in the various forms of Dyspepsia, including Constipation, Acidity, Heartburn, etc.; in Uterine disease, connected with an inactivity of the large intestines; as also in the nausea of pregnancy; in febrile conditions; in short, in all those types of disease where Saline Purgatives are indicated, we have no hesitation in recommending it as a mild yet efficacious cathartic.

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its action is none the less marked, for, in diminished doses, its influence is transferred to the renal system. Hence, in Rheumatism, Gout, Dropsy, and diseases of the Urinary System, the SELTZER APERIENT can be relied upon to correct the acidity of the urine, and promote a copious renal secretion.

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our preparation is surpassed by no other. It completely removes that horror and disgust so often expressed in taking saline cathartics. Instead of nauseating a delicate stomach, it is cooling, refreshing, invigorating, making it especially desirable in that class of diseases where salines are administered in frequent and long-continued doses. It is

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Being in a pulverized form, it only requires the addition of water to create at once a sparkling and refreshing beverage.

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A prominent New York physician lately complained to Dundas Dick about his Sandalwood Oil Capsules, stating that sometimes they almost cured miraculously, but that he had had a patient who had taken them for some time without the least effect. On being informed that several imitations were made and sold, he promised to inquire, which he did, and found that his patient had been taking capsules sold in bottles, and the druggist stated that he could not get **D. D. & Co.'s** at the time, and had often sold the others instead, supposing that, as they were said to contain the same amount of Oil of Sandalwood and Oil of Cassia as the genuine, they would have the same effect.

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Oil of Sandalwood is fast superseding every other remedy, sixty Capsules *only* being required to insure a safe and certain cure in six or eight days. From no other medicine can a like satisfactory result be obtained. Our own Copaiba require on an average about twenty days; our Copaiba and Cubebs about seventeen; and our Matico about fifteen; while the best of the *hard* Capsules require about forty days.

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Physicians will please notify **D. D. & Co.**, if, under favorable circumstances, their Capsules do not always have the desired effect.

BELLEVUE HOSPITAL MEDICAL COLLEGE.

CITY OF NEW YORK.

SESSIONS OF 1875-'76.

THE COLLEGIATE YEAR in this Institution embraces a preliminary Autumnal Term, the Regular Winter Session, and a Summer Session.

THE PRELIMINARY AUTUMNAL TERM for 1875–1876 will commence on Wednesday, September 15, 1875, and continue until the opening of the Regular Session. During this term, instruction, consisting of didactic lectures on special subjects and daily clinical lectures, will be given, as heretofore, by the entire Faculty. Students designing to attend the Regular Session are strongly recommended to attend the Preliminary Term, but attendance during the latter is not required. *During the Preliminary Term, clinical and didactic lectures will be given in precisely the same number and order as in the Regular Session.*

THE REGULAR SESSION will commence on Wednesday, September 29, 1875, and end about the 1st of March, 1876.

FACULTY.

ISAAC E. TAYLOR, M. D.,
Emeritus Professor of Obstetrics and Diseases of Women and Children, and President of the College.

JAMES R. WOOD, M. D., LL. D.,
Emeritus Prof. of Surgery.

FORDYCE BARKER, M. D.,
Professor of Clinical Midwifery and Diseases of Women.

AUSTIN FLINT, M. D.,
Professor of the Principles and Practice of Medicine and Clinical Medicine.

W. H. VAN BUREN, M. D.,
Professor of Principles and Practice of Surgery, with Diseases of Genito-Urinary System and Clinical Surgery.

LEWIS A. SAYRE, M. D.,
Professor of Orthopedic Surgery, Fractures and Dislocations, and Clinical Surgery.

ALEXANDER B. MOTT, M. D.,
Professor of Clinical and Operative Surgery.

WILLIAM T. LUSK, M. D.,
Professor of Obstetrics and Diseases of Women and Children, and Clinical Midwifery.

EDMUND R. PEASLEE, M. D., LL. D.,
Professor of Gynæcology.

EDWARD G. JANEWAY, M. D.,
Lecturer on Materia Medica and Therapeutics, and Clinical Medicine.

AUSTIN FLINT, Jr., M. D.,
Professor of Physiology and Physiological Anatomy, and Secretary of the Faculty.

ALPHEUS B. CROSBY, M. D.,
Professor of Descriptive and Surgical Anatomy.

R. OGDEN DOREMUS, M. D., LL. D., Professor of Chemistry and Toxicology.

PROFESSORS OF SPECIAL DEPARTMENTS, Etc.

HENRY D. NOYES, M. D.,
Professor of Ophthalmology and Otology.

JOHN P. GRAY, M. D.,
Professor of Psychological Medicine and Medical Jurisprudence.

EDWARD L. KEYES, M. D.,
Professor of Dermatology, and Adjunct to the Chair of Principles of Surgery.

EDWARD G. JANEWAY, M. D.,
Professor of Pathological and Practical Anatomy. (Demonstrator of Anatomy.)

A distinctive feature of the method of instruction in this College is the union of clinical and didactic teaching. All the lectures are given within the Hospital grounds. During the Regular Winter Session, in addition to four didactic lectures on every week-day except Saturday, two or three hours are daily allotted to clinical instruction. The union of clinical and didactic teaching will also be carried out in the Summer Session, nearly all of the teachers in this Faculty being physicians and surgeons to the Bellevue Hospital.

The Summer Session will consist chiefly of Recitations from Text-books. This term continues from the middle of March to the end of June. During this Session, there will be daily recitations in all the departments, held by a corps of examiners appointed by the regular Faculty. Regular clinics will also be held.

FEES FOR THE REGULAR SESSION.

Fees for Tickets to all the Lectures during the Preliminary and Regular Term, including Clinical Lectures	$140 00
Matriculation Fee	5 00
Demonstrator's Ticket (including material for dissection)	10 00
Graduation Fee	30 00

FEES FOR THE SUMMER SESSION.

Matriculation (Ticket good for the following Winter)	$ 5 00
Recitations, Clinics and Lectures	50 00
Dissection (Ticket valid for the following Winter)	10 00

For the Annual Circular and Catalogue, giving regulations for graduation, and other information, address the Secretary of the College,

Prof. AUSTIN FLINT, Jr., *Bellevue Hospital Medical College.*

UNIVERSITY OF ILLINOIS-URBANA
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